(4/25)

CHECKLIST FOR FILING A UIC PERMIT APPLICATION

Please utilize this checklist to ensure you have prepared, completed, and enclosed all required documentation and payment to ensure a timely review of your submittal.

Operator	BASE PETROLEUM, INC.		
Existing UIC Permit ID Number	2DO390644	UIC Well API Number	47-039-0644

Office of Oil and Gas Office Use Only	
Permit Reviewer	DAN
Date Received	10/13/20
Administratively Complete Date	
Approved Date	
Permit Issued	

Please check the fees and payment included.

Fees		Payment Type	
UIC Permit Fee: $500	☐	Check #33068	☐
Groundwater Protection Plan (GPP) Fee: $50.00	☐	Electronic	☐
		Other	☐

$550 paid 10/26/20 mail

Please check the items completed and enclosed.

- ☑ Checklist
- ☑ UIC-1
  - ☑ Section 1 – Facility Information
  - ☑ Section 2 – Operator Information
  - ☑ Section 3 – Application Information
  - ☑ Section 4 – Applicant/Activity Request and Type
  - ☑ Section 5 – Brief description of the Nature of the Business
  - NA ☑ CERTIFICATION
- NA ☑ Section 6 – Construction
  - ☑ Appendix A Injection Well Form
  - NA ☑ Appendix B Storage Tank Inventory
- ☑ Section 7 – Area of Review
  - NA ☑ Appendix C Wells Within the Area of Review

RECEIVED
Office of Oil and Gas
OCT 13 2020
WV Department of
Environmental Protection

Recd ck
10/26/2020
CK# 33068
Amt $550
Date 10/22/20

dep

- [ ] Appendix D Public Service District Affidavit — PSD didn't return form
- [x] Appendix E Water Sources
- [N/A] Appendix F Area Permit Wells
- [x] Section 8 – Geological Data on Injection and Confining Zones
- [x] Section 9 – Operating Requirements / Data
- [x] Appendix G Wells Serviced by Injection Well
- [x] Section 10 – Monitoring
- [x] Section 11 – Groundwater Protection Plan (GPP)
- [x] Appendix H Groundwater Protection Plan (GPP)
- [x] Section 12 – Plugging and Abandonment
- [x] Section 13 – Additional Bonding
- [x] Section 14 – Financial Responsibility
- [x] Appendix I Financial Responsibility
- [ ] Section 15 – Site Security Plan
- [N/A] Appendix J Site Security for Commercial Wells
- [ ] Section 16 – Additional Information
- [x] Appendix K Other Permit Approvals

RECEIVED
Office of Oil and Gas
OCT 13 2020
WV Department of
Environmental Protection

NOTE: For all 2D wells an additional bond in the amount of $5,000 is required.

Reviewed by (Print Name): Blake E. Jones

Reviewed by (Sign): Blake E. Jones

Date Reviewed: 10/13/2020

Section 1 – 5

UIC-1 Form

UIC-1
(4/25)

WEST VIRGINIA DEPARTMENT OF
ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
www.dep.wv.gov/oil-and-gas

UNDERGROUND INJECTION CONTROL (UIC) PERMIT APPLICATION

UIC PERMIT ID # UIC2D0390644 API # 47-039-00644 WELL # PARSONS #1-A

Section I. Facility Information

Facility Name: BASE PETROLEUM PARSONS #1-A

Address: 100 WILCOX FARM LANE

City: SOUTH CHARLESTON State: WV Zip: 25309

County: KANAWHA District: Poca

RECEIVED
Office of Oil and Gas
OCT 13 2020
WV Department of
Environmental Protection

Location description:

On waters of a branch of Leatherwood Creek

Location of well(s) or approximate center of field/project in UTM NAD 83 (meters):

Northing: 4265367.1 Easting: 453430.6

Latitude: 39.535493
Longitude: -81.534326

Environmental Contact Information:

Name: Title:

Phone: Email:

Section 2. Operator Information

Operator Name: BASE PETROLEUM, INC.

Operator ID: 305961

Address: 100 WILCOX FARM LANE

City: SOUTH CHARLESTON State: WV Zip: 25309

County: KANAWHA

Contact Name: JOHN WILCOX Contact Title: PRESIDENT

Contact Phone: 304-758-2827 Contact Email: jhnwilcox@aol.com

Section 3. Applicant Information

Ownership Status: ■ PRIVATE ☐ PUBLIC ☐ FEDERAL ☐ STATE
☐ OTHER (explain):

SIC code: ■ 1311 (2D, 2H, 2R) ☐ 1479 (3S) ☐ OTHER (explain):

Section 4. Applicant / Activity Request and Type:

A. Apply for a new UIC Permit: ☐ 2D ☐ 2H ☐ 2R ☐ 3S
B. Reissue existing UIC Permit: ■ 2D ☐ 2H ☐ 2R ☐ 3S
C. Modify existing UIC Permit: ☐ 2D ☐ 2H ☐ 2R ☐ 3S
(Submit only documentation pertaining to the modification request)
2D COMMERCIAL FACILITY: ☐ YES ☐ NO

Section 5. Briefly describe the nature of business and the activities to be conducted:

Water produced from Base Petroleum, Inc. wells within the area to be injected/disposed into the BIG LIME Formation(1560' - 1690'). This is a Non-Commercial Disposal Well and disposes of Class II compliant fluids.

6/02

APPLICATION CERTIFICATION

In accordance with WV Code 47CSR13-13.11, all UIC permit applications must be signed by one of the following:

1. a principle corporate officer of at least the level of vice-president for a corporation,
2. a general partner for a partnership,
3. the proprietor or owner of a sole proprietorship,
4. a principal executive or ranking elected official for a public agency,
5. a duly authorized representative in accordance with 47CSR13-13.11.b. (A person may be duly authorized by one of the primary entities (1-4) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

Base Petroleum

Company Name

2D03900644

UIC Permit Number

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (47CSR13-13.11.d)

John Wilcox

Print Name

Agent

Print Title

Signature

6/10/22

Date

Section 6

Construction

APPENDIX A

1) GEOLOGIC TARGET FORMATION Big Lime (Greenbrier Limestone)

Depth 1,560 Feet (top) 1,690 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 1,690 Feet

3) Approximate water strata depths: Fresh 90, 100 Feet Salt 1,123, 1,180 Feet

4) Approximate coal seam depths: None

5) Is coal being mined in the area? Yes _____ No X

6) Virgin reservoir pressure in target formation 1,155 psig Source Well Record

7) Estimated reservoir fracture pressure _____ psig (BHFP)

8) MAXIMUM INJECTION OPERATIONS:

Injection rate (bbl/hour)	2
Injection volume (bbl/day)	48
Injection pressure (psig)	0 (Gravity Feed)
Bottom hole pressure (psig)	850

9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES

Brine water/produced fluids from oil and gas wells.

No additives will be used.

Temperature of injected fluid: (°F) 70 Degrees Fahrenheit

10) FILTERS (IF ANY) 10 Micron

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

N/A

(4/25)

APPENDIX A (cont.)

RECEIVED
Office of Oil and Gas
SEP 20 2022
WV Department of
Environmental Protection

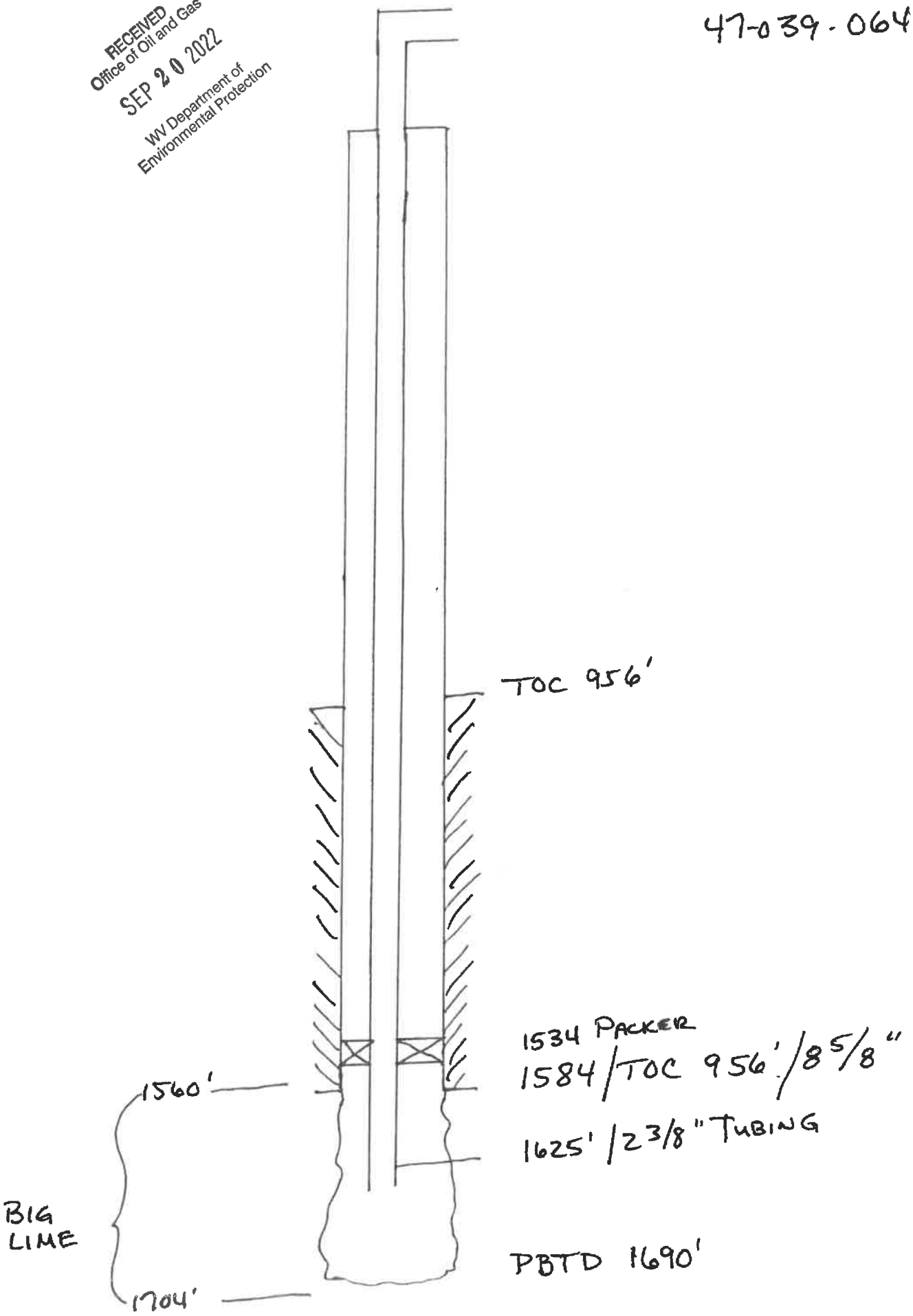
12. Casing and Tubing Program

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor							
Fresh Water							
Coal							
Intermediate 1							
Intermediate 2							
Production	8.625			25.5	1584	1584	956' fill up
Tubing	2.375		J-55	4.6		1625	
Liners							

TYPE	Wellbore Diameter	Casing Size	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./sk)	Cement to Surface ? (Y or N)
Conductor							
Fresh Water							
Coal							
Intermediate 1							
Intermediate 2							
Production							
Tubing							
Liners							

PACKERS	Packer #1	Packer #2	Packer #3	Packer #4
Kind:	Tension			
Sizes:	2.375 X 8.625			
Depths Set:	1534			

PARSONS A-1
47-039-0644



EXHISTING WELL SCHEMATIC

WELL DATA SHEET

WELL NAME Parsons A #1
FIELD Culloden 665
PERMIT NO. KAN-694
COMPL DATE 3/30/97 TD 5092
WORKING INTEREST

GW # 430 DATE / /
CNTY Kanawha ST WV
LEASE NO.
PBTD 1690 ELEV 851.4
NET INTEREST

FORMATION	TOP	BTM	DATUM	DATE	O.F. MCFD	HRS.
Big Lime	1560	1704		/ /		
Big Injun	1704	1731		/ /		
Berea	2135	2137		/ /		
Oriskany	5018	5089		/ /		

CASING PROGRAM

SIZE	WGT	GRADE	DEPTH	CEMENT	TOC
14"	42#		43		
10 3/4"			407	Pulled	
8 5/8	25.55		1584	295xs Aqua Cml. 1st Aquagel	956

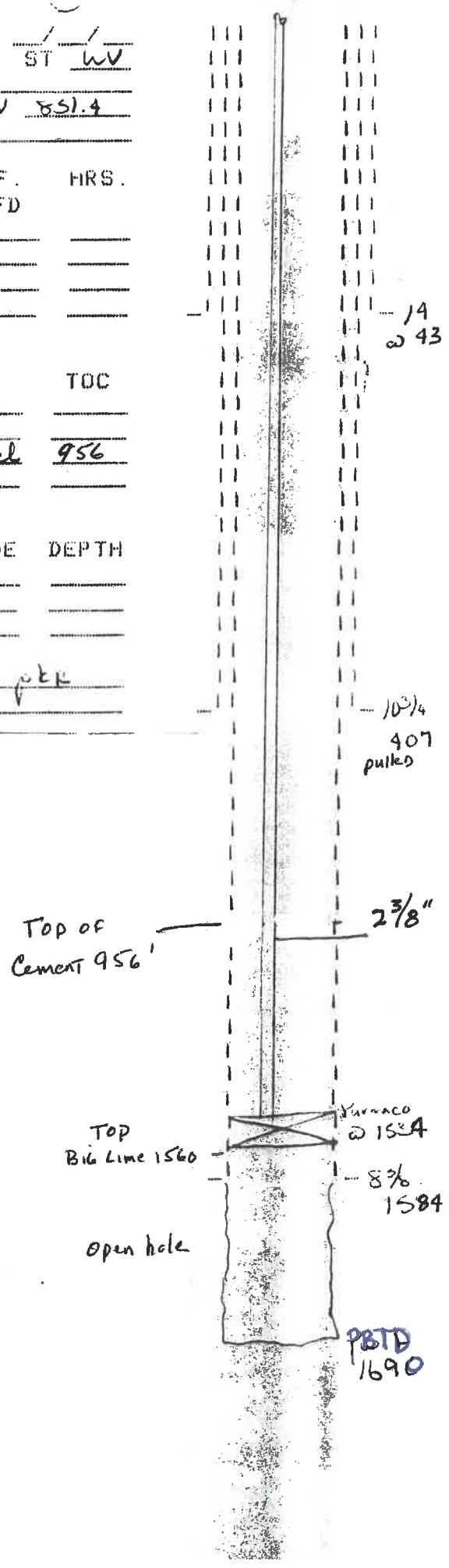
TUBING

SIZE	WGT	GRADE	DEPTH
2 3/8	4.7#	J-55 EUE	1584

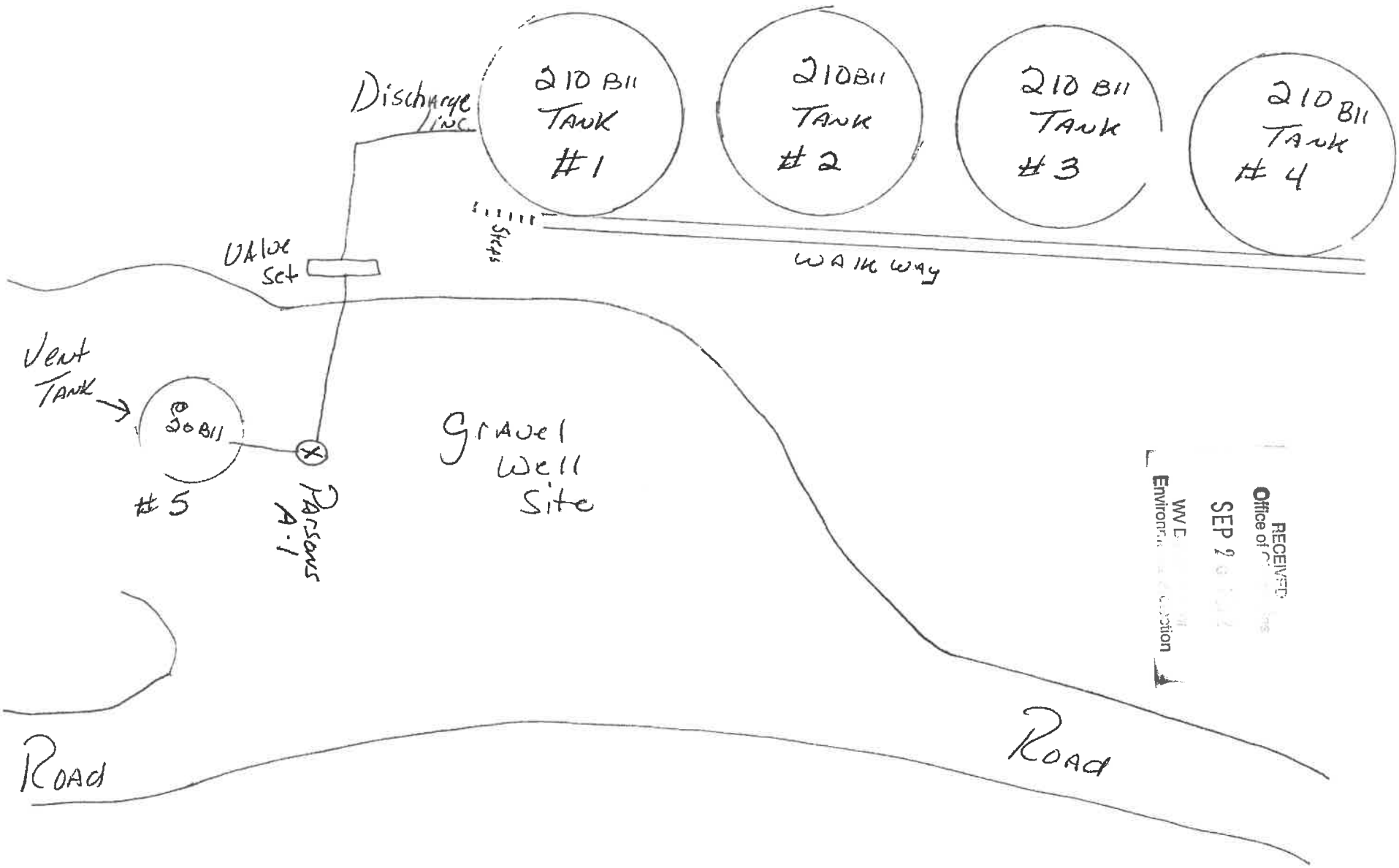
RODS

SIZE	WGT	GRADE	DEPTH

DOWN HOLE PROD EQUIP Furnaco Hookwall compression pkr @ 1534



Parsons A-1




Untitled Map
Write a description for your map.
Legend
Path Measure
PARSONS
A-1
Google Earth
N

WVGES
GEOLOGY UNDERLIES IT ALL
"Pipeline"

Select County: (039) Kanawha
Enter Permit #: 644
Get Data | Reset

Select datatypes: (Check All)
Location | Production | Plugging
Owner/Completion | Stratigraphy | Sample
Pay/Show/Water | Logs | Btm Hole Loc

Table Descriptions
County Code Translations
Permit-Numbering Series
Usage Notes
Contact Information
Disclaimer
WVGES Main
"Pipeline-Plus"

WV Geological & Economic Survey:

Well: County = 039 Permit = 644 Link to all digital records for well

Report Time: Wednesday, January 18, 2023 3:20:26 PM

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4703900644	Kanawha	644	Poca	Romance	Kenna	38.535493	-81.534326	453430.6	4265367.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4703900644	10/27/1939	Original Loc	Completed	H H Parsons et al	1	430			H H Parsons et al	Columbian Carbon Co.			
4703900644	4/27/1946	Worked Over	Completed	H H Parsons et al	A-1	GW-430				Columbian Carbon Co.			
4703900644	-/-/1971	Worked Over	Completed	H H Parsons	A-1	GW-430				Cities Service Oil & Gas Corp.			
4703900644	-/-/-	Worked Over	Completed	Facemeyer Lumber	A-1		Parsons			Base Petroleum, Inc.			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_B
4703900644	10/27/1939	7/21/1939	851	Derrick Floor	Elk-Pca(Ssnvl)	Helderberg	Oriskany	Development Well	Development Well	Gas w/ Oil Show	unknown	Shot	5092		5092		
4703900644	4/27/1946	-/-/-	851	Ground Level	Hicumbottom Run	Big Lime				not available	unknown	unknown	1690		0		
4703900644	-/-/1971	-/-/-	851	Ground Level	Hicumbottom Run	Big Lime	Big Lime	Service Well	Unsuccessful	Salt Water Disp	unknown	Acidized	1690		0		
4703900644	-/-/-	-/-/-	851	Ground Level	Hicumbottom Run	Big Lime	Big Lime	Service Well	Unsuccessful	Salt Water Disp	unknown	unknown	1690		0		

Comment: 4/27/1946 Unknown what well type was when plugged back to Big Lime. Also unsure if Columbian Carbon Co is correct operator on plug back.
Comment: -/-/1971 Farm name may be incorrect. Also, at some point after 1978, well was also used as waterflood for EOR.
Comment: -/-/- Well is gravity fed

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4703900644	10/27/1939	Water	Fresh Water	Vertical			90						3
4703900644	10/27/1939	Water	Fresh Water	Vertical			100						6
4703900644	10/27/1939	Show	Oil	Vertical			1117	Salt Sands (undiff)	0	0			
4703900644	10/27/1939	Water	Salt Water	Vertical			1123						3
4703900644	10/27/1939	Show	Gas	Vertical			1166	Salt Sands (undiff)	0	0			
4703900644	10/27/1939	Show	Oil	Vertical			1171	Salt Sands (undiff)	0	0			
4703900644	10/27/1939	Water	Salt Water	Vertical			1180						0
4703900644	10/27/1939	Show	Gas	Vertical			1585	Big Lime	0	0			
4703900644	10/27/1939	Show	Gas	Vertical			1637	Big Lime	0	0			
4703900644	10/27/1939	Show	Gas	Vertical	1653	Big Lime	1655	Big Lime	0	0			
4703900644	10/27/1939	Show	Oil	Vertical	1653	Big Lime	1655	Big Lime	0	0			
4703900644	-/-/-	Horizon	Injection	Vertical	1560	Big Lime	1704	Big Lime					
4703900644	-/-/1971	Horizon	Injection	Vertical	1560	Big Lime	1704	Big Lime					
4703900644	10/27/1939	Pay	Gas	Vertical	5034	Oriskany	5036	Oriskany	0	0			
4703900644	10/27/1939	Pay	Gas	Vertical	5051	Oriskany	5054	Oriskany	0	0			
4703900644	10/27/1939	Pay	Gas	Vertical	5080	Oriskany	5086	Oriskany	0	794			

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703900644	Cities Service Oil & Gas Corp.	1981	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Cities Service Oil & Gas Corp.	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Cities Service Oil & Gas Corp.	1985													
4703900644	Cities Service Oil & Gas Corp.	1986	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	# 174 on DOE '87 Prod Tape	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	1998	68	6	6	6	5	6	4	7	7		7	7	7
4703900644	Base Petroleum, Inc.	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703900644	Cities Service Oil & Gas Corp.	1981	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Cities Service Oil & Gas Corp.	1982	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Cities Service Oil & Gas Corp.	1985													
4703900644	Cities Service Oil & Gas Corp.	1986	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	# 174 on DOE '87 Prod Tape	1987	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	1998	105	12	12	5		9	13	7	7		33	7	
4703900644	Base Petroleum, Inc.	2000	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4703900644	Base Petroleum, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4703900644	Base Petroleum, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV	DATUM
4703900644	Original Loc	Salt Sands (undiff)	Well Record	1086	Reasonable	398	Reasonable	851	Derrick Floor
4703900644	Original Loc	Maxton	Well Record	1488	Reasonable	72	Reasonable	851	Derrick Floor
4703900644	Original Loc	Greenbrier Group	Well Record	1560	Reasonable	144	Reasonable	851	Derrick Floor
4703900644	Original Loc	Big Lime	Well Record	1560	Reasonable	144	Reasonable	851	Derrick Floor
4703900644	Original Loc	Price Fm & equivs	Well Record	1704	Reasonable	433	Reasonable	851	Derrick Floor
4703900644	Original Loc	Big Injun (Price&eq)	Well Record	1704	Reasonable	27	Reasonable	851	Derrick Floor
4703900644	Original Loc	Sunbury Sh	Well Record	2125	Reasonable	10	Reasonable	851	Derrick Floor
4703900644	Original Loc	Berea Ss	Well Record	2135	Reasonable	2	Reasonable	851	Derrick Floor
4703900644	Original Loc	UDev undf:Ber/LoHURN	Well Record	2137	Reasonable	1218	Reasonable	851	Derrick Floor
4703900644	Original Loc	Lower Huron	Well Record	3355	Reasonable	645	Reasonable	851	Derrick Floor
4703900644	Original Loc	Big White Slate	Well Record	4000	Reasonable	525	Reasonable	851	Derrick Floor
4703900644	Original Loc	Rhinestreet Sh	Well Record	4525	Reasonable	247	Reasonable	851	Derrick Floor
4703900644	Original Loc	Onondaga Ls	Well Record	4897	Reasonable	121	Reasonable	851	Derrick Floor
4703900644	Original Loc	Oriskany	Well Record	5018	Reasonable	71	Reasonable	851	Derrick Floor
4703900644	Original Loc	Helderberg	Well Record	5089	Reasonable	0	Reasonable	851	Derrick Floor

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT

4703900644	4/27/1946	1690

Sample Information:

API	CUT1_TOP	CUT1_BOT	CUT2_TOP	CUT2_BOT	CORE1_TOP	CORE1_BOT	FM1_TOP	FM1_BOT	CORE2_TOP	CORE2_BOT	FM2_TOP	FM2_BOT	SMPL	THN_SEC1	SCAN1	SLAB1	PERM1	THN_SEC
4703900644	1558	5092																

GG-19

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Kenna

WELL RECORD

Permit No. Kan-644 — Oil or Gas Well (Kind) GAS

Company COLUMBIAN CARBON COMPANY
Address Box 1240, Charleston, W. Va.
Farm H. H. Parsons — Acres 57
Location (waters) Branch of Leatherwood
Well No. A-1 (GW-430) — Elev. 851.4 DF
District Poca — County Kanawha
The surface of tract is owned in fee by H. H. Parsons et al (For addresses contact Columbian Carbon Company)
Address
Mineral rights are owned by " SAME "
Address
Drilling commenced 7-21-39
Drilling completed 10-27-39
Date shot 10-27-39 — Depth of shot 5033-5086
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume 794M 794,000 Cu. Ft.
Rock Pressure 1155 lbs. 3 Days hrs.
Oil 1117; 1171 90' 3-13" Bailers per Hr. bbls., 1st 24 hrs.
Fresh water 100' 6-13" " feet " " feet
Salt water 1123' 3-10" " feet " " feet
1180' Hole Full Water

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
~~13~~ 14"	43'	43'	No. Packer
10 -3/4"	406'8"	Pulled	Size of
8¼ 5/8"	1584'3"	1584'3"	
~~6 5/8~~ 7"	1856'3"	1856'3"	Depth set
5 ~~3/16~~ ½"	4934'7"	4934'7"	
3			Perf. top
2 -3/8"	5111'0"	5111'0"	Perf. bottom
Liners Used			Perf. top
3" 8.7#	91'1"	91'1"	Perf. bottom

CASING CEMENTED ..... SIZE ..... No. FT. ..... Date
See Reverse Side
COAL WAS ENCOUNTERED AT ..... FEET ..... INCHES
..... FEET ..... INCHES ..... FEET ..... INCHES
..... FEET ..... INCHES ..... FEET ..... INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil Gas or Water	Depth Found	Remarks
Clay			0	53			
Sand	White		53	96	Water	90'	3-13" Bailers per Hr.
Red Rock			96	155			
Slate			155	175	Water	100'	6-13" do
Red Rock			175	190			
Black Lime			190	214			
Red Rock			214	310			
Sand			310	346			
Slate			346	380			
Lime			380	395			
Sand			395	440			
Slate			440	443			
Sand			443	455			
Slate			455	522			
Sand			522	638			
White Slate			638	665			
Black Slate			665	702			
Sand			702	773			
Brown Shale			773	835			
Sand			835	855			
Black Slate			855	1005			
Sand			1005	1048			
Brown Shale			1048	1086			
Salt Sand			1086	1484	Oil	1117	Show
Slate			1484	1488	Water	1123	3-10" Bailers Hr
Maxton Sand			1488	1560 SLM	Gas	1166	Show
Big Lime			1560 SLM	1704	Oil	1171	
Big Injun Sand			1704	1731	Water	1180	Hole Full
Slate			1731	1734	Gas	1585	Small Show
Lime Shell			1734	1740	Gas	1637	Show
Slate & Shells			1740	1831	Gas	1653-55	Show
Hard Lime Shells			1831	1843	Oil	1653-55	Show
Slate & Shells			1843	2125			
Brown Shale			2125	2135			
Berea Sand			2135	2137			
Lime			2137	2155			
Slate & Shells			2155	3355			
Brown Shale			3355	3390			
Slate & Shells			3390	3656			
Brown Shale			3656	3714			
Slate & Shells			3714	3798			

PBTD 1690' — in 1946.

NOV 1939 WEST VIRGINIA DEPARTMENT OF MINES

(Over)

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Light Shale			3798	3860			
Brown Shale			3860	3948			
White Shale			3948	3980			
Slate & Shells			3980	4000			
White Shale			4000	4475			
Lime			4475	4478			
White Shale			4478	4505			
Dark Shale			4505	4525			
Brown Shale			4525	4772			
Lime Shell			4772	4776			
Brown Shale			4776	4795			
Black Shale			4795	4866			
Dark Brown Shale			4866	4897 SLM			
Corniferous Lime			4897 SLM	5018* SLM		PAY: 5034-36; 5051-54; 5080-86	
Oriskany			5018* SLM	5067*			
Sandy Lime			5067*	5083*			
Oriskany			5083*	5089*			
Lime			5089*	5092			
TOTAL DEPTH				5092			

* also per sample analyses

CEMENT RECORD:

8-5/8" — 8/12/39 - Ran 79 Sacks Alpha Cement mixed with 1 Sack Aquagel. Ran 5 Sacks Aquagel ahead of cement - 4% mixture. Ran plug between Aquagel and cement. 10' spacer. 12' cement left in hole.
Dallas Holley, Cementer - Halliburton Oil Well Cementing Company

5-1/2" — 10/2/39 - Ran 25 Sacks Alpha Cement Plug on top of cement - 10' spacer. Casing went back to bottom. 55' hard cement in pipe.
Pat Patterson, Cementer
Halliburton Oil Well Cementing Company

Date November 20, 1939

APPROVED COLUMBIAN CARBON COMPANY, Owner

By O.W. Van Petten (Title) Sup't.

FORM OG-8

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE MADE IN TRIPLICATE: ONE COPY MAILED TO THE DEPARTMENT, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD COPY (AND EXTRA COPIES IF REQUIRED) SHOULD BE MAILED TO EACH COAL OPERATOR AT THEIR RESPECTIVE ADDRESSES.

None
COAL OPERATOR OR OWNER

ADDRESS

COAL OPERATOR OR OWNER

ADDRESS

LEASE OR PROPERTY OWNER

ADDRESS

Columbian Carbon Company
NAME OF WELL OPERATOR

Box 873, Charleston 23, W. Va.
COMPLETE ADDRESS

April 22, 194 6
WELL AND LOCATION

Poca District

Kanawha County

Well No. Or-430

M. B. Parsons 1-A Farm

STATE INSPECTOR SUPERVISING PLUGGING C. N. Hall

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha } ss:

Ralph Snyder and C. E. Kessel being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by Columbian Carbon Company well operater, and participated in the work of plugging and filling the above well, that said work was commenced on the 8th day of April, 194 6, and that the well was plugged and filled in the following manner:

SAND OR ZONE RECORD		FILLING MATERIAL		PLUGS USED	CASING	
FORMATION	CONTENT	FROM	TO	SIZE & KIND	CSG PULLED	CSG LEFT IN
Lime	Clay & Rock	5089	5092	5½" casing	4384'3"	550'4"
Oriskany	Clay & Rock	5083	5089	7" casing	1856'3"	—
Sandy Lime	Clay & Rock	5067	5083	2-3/8" tubing	5111'1"	—
Oriskany	Clay & Rock	5067	5018	3½" Liner	91'1"	—
Corniferous Lime	Cement	4993	5018			
	MAF Plug	4993	4990			
	Aquagel	4907	4384			
	Aquagel	4384	1856			
	Aquagel	1856	1750			
	Stone, Clay, Cement	1750	1690			
	Acidized and producing					

COAL SEAMS	DESCRIPTION OF MONUMENT
(NAME)	
(NAME)	
(NAME)	
(NAME)	

and that the work of plugging and filling said well was completed on the 22nd day of April, 194 6.

And further deponents saith not.

Ralph Snyder
C. E. Kessel

Sworn to and subscribed before me this 28 day of May, 194 6

Notary Public.

My commission expires:
Nov-7-1946

Permit No. KAN-611-P

JRB

JARVIS PRINTING COMPANY, CHARLESTON, W. VA.

Plug Back Description

On April 27, 1946, the well was plugged back to the Big Lime Horizon, a depth of sixteen hundred and ninety feet. The following procedure was used in plugging, the well back to 1690'.

Fill Solid	(5092'-5018')
Kill Oriskany Gas	
Cement	(5018-4993'-3 sacks)
MCF Plug	(4993'-4990')
5½" casing cemented	(4907'-4467')
Rip above 4467' and pull	
Pull 7" casing set at 1835'	
Fill hole with aquagel (4990'-1750') - 17 sacks 4%	
Bridge Solid - 1750-1700' run on bridge to make solid-mix red clay with bridging material. The productive intervals in the Big Lime were from 1585-1637' and 1553'-1665'. (See enclosed strip log and well record)	

1-15-70

H. H. Parsons, etal A-1 " 851.4"

.8 Mi S.W. Blundon, W. Va. Br of Leatherwood Kanawha County,
10-27-39 5092' 1690' (4-27-46) W. Va.
Oriskany 5034'
Big Lime 1560'

14"	42#	43	
8-5/8"	25.55#	1584'-3"	
5"	20#	550'	

Strip logs

open hose

2-3/8" tubing 5111' - Bottom joint perforated w/52-5/16" drilled hole

No Coal
F. Water
@ 30' & 100'

Nitroglycerine - one shot

No. shells 1 - 3½ x 6" 12 qt.; 2-3½ x 10' water shell w/1½" Gly core; 1-3½ x 10' - 30 qt.;
1 - 3½ x 12' water shell 1½" gly core

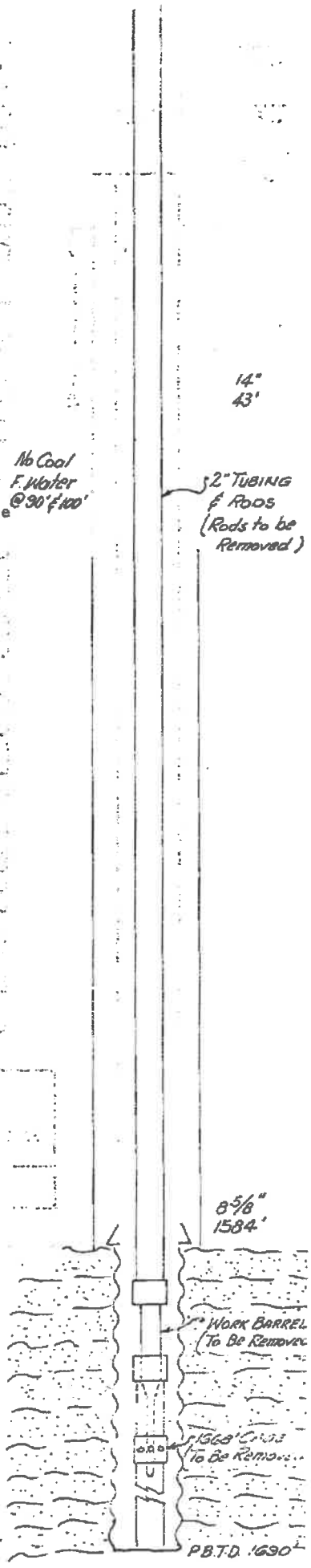
Big Lime 4-27-46 47 12½ bbls. of oil per day

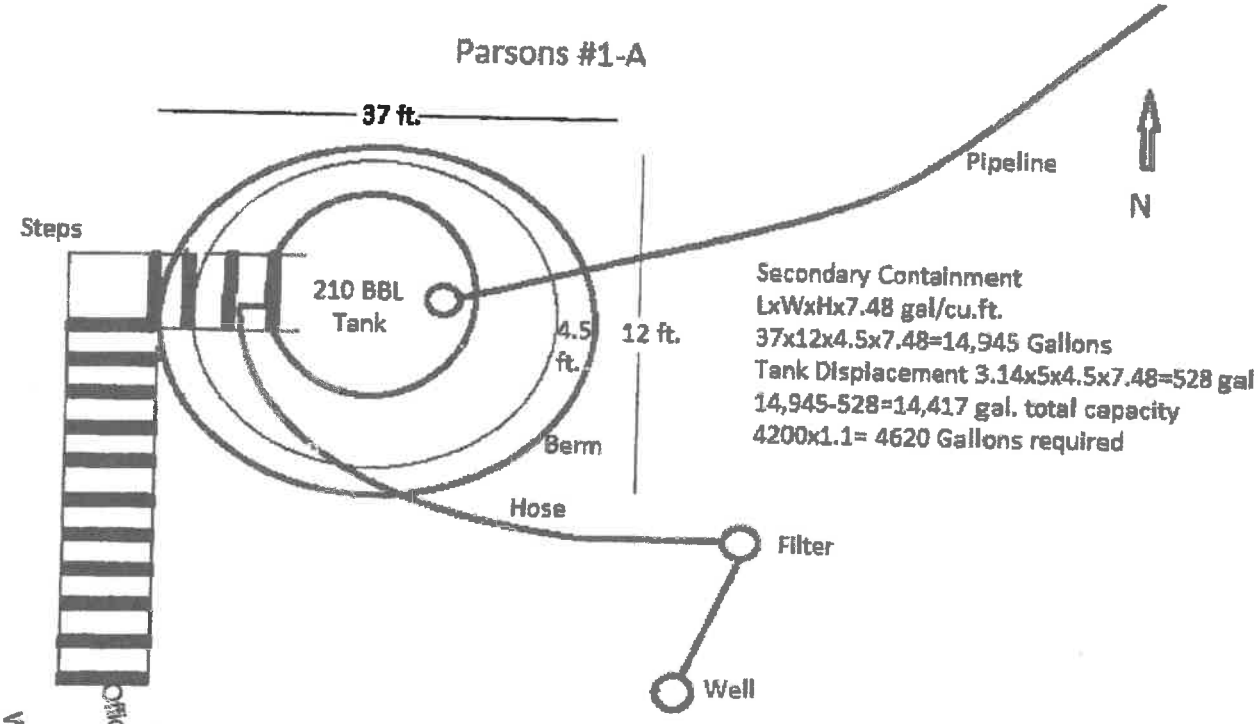
Oriskany gas exhaust. Plug back to Big Lime

Acidize with 4200 gal. of inhibited hydrochloric and produced oil and gas

1/17/71 0 and 0 oil per day

2-3/8"	4#		1678'
5/8"x25		new	1650'





UIC2D0390644

APPENDIX B
Storage Tank Inventory

API #	Tank ID	Tank Location (UTM NAD 83 Meters)		Installation Date	Tank Age (Months)	Construction Material (Steel, plastic, etc.)	Capacity (gallons)	Type of Fluid Stored	Volume of Fluid Stored (gallons)	Tank Type Single/Double Wall
		Northing	Easting							
039-00644	1	4265389.45	546562.59	2009	156	Steel	8820	Brine	1500	Single
	2	4265394.48	546562.59	2009	156	Steel	8820	Brine	1500	Single
	3	4265403.34	546565.15	2009	156	Steel	8820	Brine	1500	Single
	4	4265406.68	546566.00	2009	156	Steel	8820	Brine	1500	Single
	5	4265375.52	546551.37	2009	156	Fiberglass	420	Brine	0	Single

Section 7

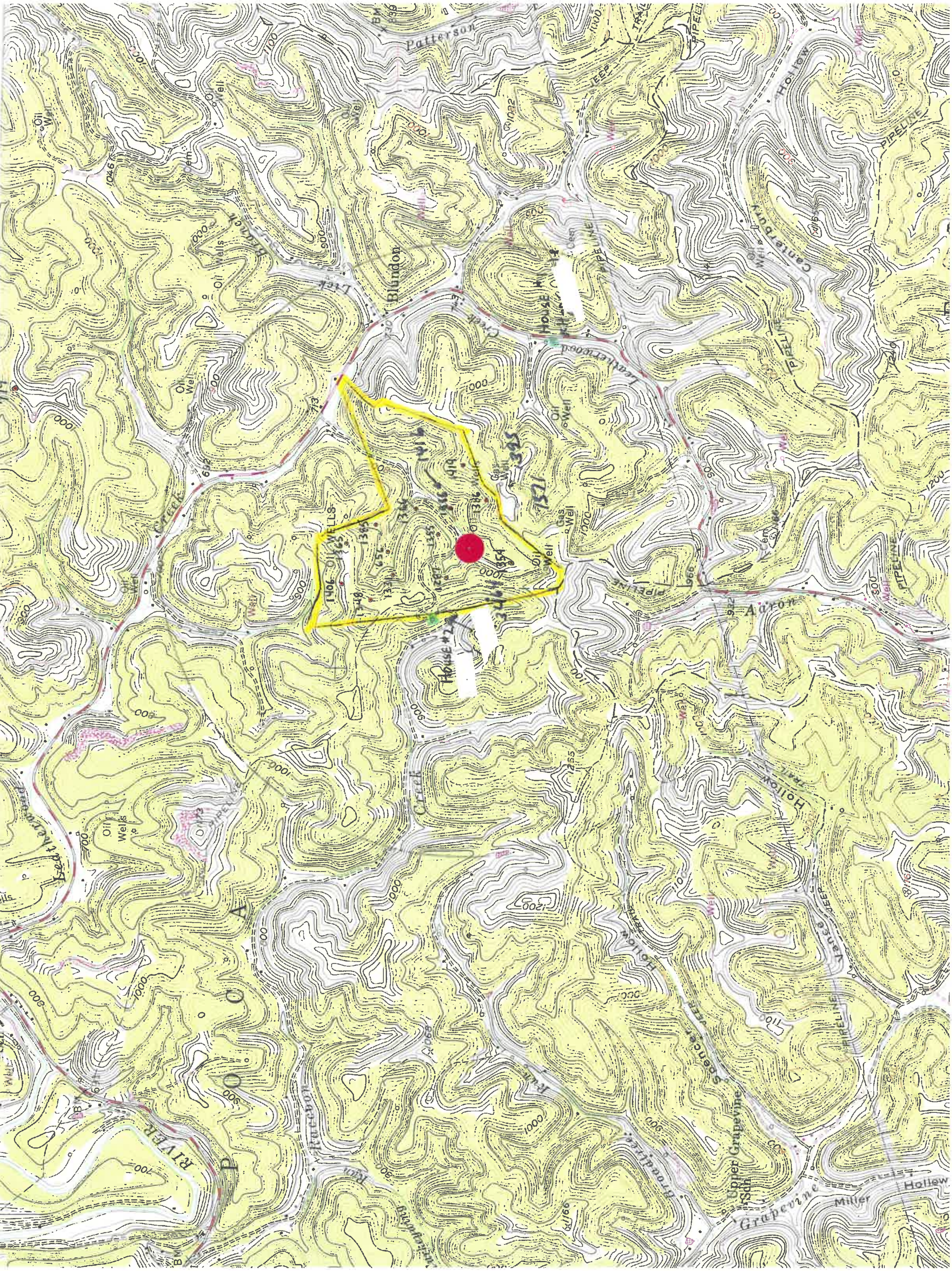
Area of Review

APPENDIX C

Wells within the Area of Review

API #	Well Type	Well Status (Active, Abandoned, Shut-in, Plugged)	Northing (UTM NAD 83 Meters)	Easting (UTM NAD 83 Meters)	Penetrate Injection Zone (Y or N)	Penetrate Confining Zone (Y or N)	Total Vertical Depth	Surface Elevation
47-039-00644	Injection	Active	4265367.08	453430.63	Y	Y	1690'	851'
47-039-01413	Oil and Gas	Active	4265048.01	453553.33	Y	Y	1831'	1088'
47-039-01371	Oil and Gas	Abandoned	4265143.94	453659.09	Y	Y	1868'	1089'
47-039-01354	Oil and Gas	Active	4265185.85	453357.49	Y	Y	1756'	926'
47-039-03464	Gas	Active	4265185.97	453128.78	Y	Y	2388'	1015'
47-039-01393	Oil and Gas	Active	4265213.30	453772.45	Y	Y	1935'	1071'
47-039-01386	Oil and Gas	Active	4265304.93	453700.11	Y	Y	1770'	974'
47-039-01366	Oil and Gas	Active	4265674.71	453636.88	Y	Y	1643'	804'
47-039-01416	Oil and Gas	Active	4265493.36	453699.63	Y	Y	1675'	838'
47-039-01355	Oil and Gas	Active	4265551.97	453504.48	Y	Y	1748'	934'
47-039-01287	Oil and Gas	Active	4265505.11	453281.26	Y	Y	1757'	939'

Make as many copies as necessary and include page numbers as appropriate.


Patterson
Blundon
Aaron
Grapevine
Miller
Hollow
RIVER
Creek
PIPELINE
Oil Wells

#150191
47-039-03464

OG-10
Rev. - 9-71

1313
41

s-1-92
no recomp. ...
Meter ...
7490
7491

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Rotary X Oil ____
Cable ____ Gas X
Recycling ____ Comb. ____
Water Flood ____ Storage ____
Disposal ____ (Kind) ____

Quadrangle Romance

Permit No. Kan 3464

	Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Company D. C. Malcolm, Inc.				
Address 1006 Commerce Sq., Charleston, W.Va.				
Farm McKinley Harding Acres 133				
Location (waters) Coon Creek	Size			
Well No. 1 Elev. 988 K.B.	20-16			
District Poca County Kanawha	Cond.			
The surface of tract is owned in fee by	13-10"			
T. E. Tignor	9 5/8			
Address Blundon, W. Va.	8 5/8	200'	200'	to surface
Mineral rights are owned by McKinley Harding	7			
et al Address	5 1/2			
Drilling Commenced 7-24-79	4 1/2	2451	2451	140 SX
Drilling Completed 8-1-79	3			thixotropic
Initial open flow ____ cu. ft. --- bbls.	2	2285	2285	on packer
Final production 350000 cu. ft. per day --- bbls.	Liners Used			
Well open 11 hrs. before test 400 RP.				

Well treatment details: Attach copy of cementing record.

Frac Berea thru perfs 2285-2288-10 holes-w/500 gals acid, 575 bbls water, 5000# 80/100, 30,000# 20/40.

Acidize Big Lime thru perfs 1815-1817 (3 holes), 1833-1835 (3 holes), 1850-1853 (6 holes) w/1000 gals 28 %, 3000 gals 15%.

Coal was encountered at ____ Feet ____ Inches
Fresh water ____ Feet ____ Salt Water 1470 Feet ____
Producing Sand Berea Depth 2282-2293

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Sand & Shale			0	250		
Shale			250	335		
Sand & Shale			335	1298		
Sand			1298	1700		
Shale			1700	1709		
Big Lime			1709	1860		
Sand (Injun)			1860	1881		
Shale			1881	2282		
Sand			2282	2293		
Shale			2293	2388	T.D.	

RECEIVED
Office of Oil & Gas
Office of Chief
MAY 12 2005
WV Department of
Environmental Protection

(over)

* Indicates Electric Log tops in the remarks section.

WR-38
DATE: 10-Aug-05

API # 47-039-3464-P

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
SECTION OF OIL AND GAS

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy to be retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Theodore Tignor **Operator Well No.:** McKinley Harding # 1
LOCATION: **Elevation:** 1015' **Quadrangle:** Romance
District: Poca **County:** Kanawha
Latitude: Feet South of 38 Deg. 35 Min. 30 Sec.
Longitude: Feet West of 81 Deg. 30 Min. 00 Sec.

Well Type: OIL _____ GAS XXXX

Company: Equitable Production Company
1710 Pennsylvania Ave
Charleston WV 25302

Coal Operator or owner McKinley Harding Heirs et al C/O
8964 Alberta Beach ST NE
Louisville, OH 44641

Agent: Stephen G. Perdue

Coal Operator or owner _____

Permit Issued Date: 5/06/04

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha ss:

Terry Huffman and Randy Fields being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by the above named well operator, and participated in the work of plugging and filling the above well, and Carlos Hivley Oil and Gas Inspector representing the Director, say that said work was commenced on the 25th day of July 2005, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
Cement	2191'	2023'	2" tubing 2285'	-0-
Cement	1750'	1582'		
Cement	2nd plug went down hole	To 1864' redone plug	4 ½ " casing 1062'	1289'
Cement	1732'	1564'		
Cement	1062'	952'	8⅝" casing 0'	200'
Cement	845'	735'		
Cement	248'	-0-		
All cement plugs have gel between				

Description of monument: 7" casing 8 ft long with API number and that the work of plugging and filling said well was completed on the 5th day of August 2005.

And further deponents saith not. _____

Sworn and subscribe before me this 8th day of August, 2005
My commission expires: December 24, 2007

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
Zelma M. Meadows
ROUTE 2, BOX 22
RAVENSWOOD, WV 26164
My Commission Expires December 24, 2007

Zelma M. Meadows
Notary Public

Oil and Gas Inspector _____

RECEIVED
Office of Oil & Gas
Office of Chief
SEP 29 2005
WV Department of
Environmental Protection

OG-10

39-1393

Kanawha

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Permit No. Kan 1393 — Oil or Gas Well Gas (KIND)

Company Leatherwood Oil & Gas Company
Address Box 2151, Charleston, W.Va.
Farm L.H. Fields Et Al — Acres 36
Location (waters) Poca River (Leatherwood Creek)
Well No. -1- — Elev. 1068'
District Poca — County Kanawha
The surface of tract is owned in fee by L.H. Fields Et Al
Address Elkview, W.Va.
Mineral rights are owned by L.H. Fields Et Al
Address Elkview, W.Va.
Drilling commenced September 16, 1947.
Drilling completed October 25, 1947.
Date Shot ____ From ____ To ____
With ____
Open Flow 90/10ths Water in 3 Inch
____/10ths Merc. in ____ Inch
Volume 1,000,000 Cu. Ft.
Rock Pressure 590 lbs. 24 hrs.
Oil ____ bbls., 1st 24 hrs.
Fresh water ____ feet ____ feet
Salt water 1395' feet ____ feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			Hookwall
10			Size of 7" OD
8¼	587'	None	
7" OD	1780'	1780'	Depth set 1780'
5 3/16			
3			Perf. top
2	None	None	Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED ____ SIZE ____ No. Ft. ____ Date

COAL WAS ENCOUNTERED AT ____ FEET ____ INCHES
____ FEET ____ INCHES ____ FEET ____ INCHES
____ FEET ____ INCHES ____ FEET ____ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Surface			0	5			
Clay	White		5	20			
Clay	Red		20	35			
Clay	White		35	75			
Mud	Blue		75	105			
Slate		Broken	105	160			
Sand		Soft	160	220			
Shale	Black		220	295			
Rock	Red		295	340			
Slate & Shells			340	450			
Rock	Red		450	480			
Slate & Shells			480	575			
Sand			575	765			
Slate & Shells			765	850			
Sand			850	875			
Slate & Shells			875	905			
Sand			905	970			
Slate			970	1030			
Sand			1030	1145			
Slate			1145	1217			
Sand			1217	1245			
Slate & Shells			1245	1289			
Salt Sand			1289	1773	Show Gas	1380-96'	
Pencil			1773	1777	Salt Water	1395'	Hole Full
Big Lime			1777	1932	Gas	1810-16'	90/10 W. 3"
Injun			1932	1935	Show Oil	1833-40'	
Total Depth			1935				

DEC 1947
WEST VIRGINIA
DEPARTMENT OF MINES

(Over)

39-1393

FORM OG-8

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE MADE IN TRIPLICATE. ONE COPY MAILED TO THE DEPARTMENT, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD COPY (AND EXTRA COPIES IF REQUIRED) SHOULD BE MAILED TO EACH COAL OPERATOR AT THEIR RESPECTIVE ADDRESSES.

NONE
COAL OPERATOR OR OWNER

ADDRESS

COAL OPERATOR OR OWNER

ADDRESS

LEASE OR PROPERTY OWNER

ADDRESS

LEATHERWOOD OIL & GAS COMPANY
NAME OF WELL OPERATOR
P.O. Box 2161
Charleston, W. Va.
COMPLETE ADDRESS

July 25, 19 49
WELL AND LOCATION

Poca District

Kanawha County

Well No. #1

L.H. Fields Et Al Farm

STATE INSPECTOR SUPERVISING PLUGGING D.E. Lawson

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Kanawha } ss:

A.R. McConnell and Fred Smith

being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by Leatherwood Oil & Gas Company, well operator, and participated in the work of plugging and filling the above well, that said work was commenced on the 9th day of May, 19 49, and that the well was plugged and filled in the following manner:

SAND OR ZONE RECORD		FILLING MATERIAL		PLUGS USED	CASING	
FORMATION	CONTENT	FROM	TO	SIZE & KIND	CSG PULLED	CSG LEFT IN
TOTAL DEPTH 1935'						
Filled with Clay	1935' to	1790'				
Cemented	1790' "	1780'				
Pulled 900' 7" OD	Casing (880' unable to recover and same left in hole)					
Continued filling with Clay to		1777'				
Cemented	1777' to	1767'				
Continued filling with Clay to		1299'				
Cemented	1299' "	1289'				
Hole Bridged		825'				
(2 Bags Cement and 5' Crushed stone on Bridge)						
Filled with Clay to		715'				
Cemented	715' "	705'				
Hole Bridged		200'		(2 Bags Cement and 5' Crushed stone on Bridge)		
Filled with Clay to Surface.						

COAL SEAMS	DESCRIPTION OF MONUMENT
(NAME)	Piece 10" Casing Cemented in Hole
(NAME)	Bearing following legends Leatherwood
(NAME)	Oil & Gas Co.-L.H. Fields Et Al # 1
(NAME)	May 24,1949.

and that the work of plugging and filling said well was completed on the 24th day of May, 19 49

And further deponents saith not.

A.R. McConnell
Fred Smith

Sworn to and subscribed before me this 10 day of September, 19 49.

Joseph J. Mendez
Notary Public.

My commission expires:
12/2/49

Permit No. 13938

39-1354

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Permit No. HAN-1354

Oil or Gas Well: OIL (KIND)

Company: Columbian Carbon Company
Address: Box 873, Charleston 23, W. Va.
Farm: H. H. Parsons — Acres: 57
Location (waters): Leatherwood Cr.
Well No.: 4-3 (C-340) — Elev.: 820.0 G
District: [illegible] — County: Kanawha
The surface of tract is owned in fee by: Helle Parsons, et ux — Address: [illegible], W. Va.
Mineral rights are owned by: — Address:
Drilling commenced: 3-4-47
Drilling completed: 4-11-47
Date Shot: Not Shot — From — To
With: Acidized 4-12-47 3/1000 gals acid
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Cu. Ft.
Rock Pressure: 23 (after acidizing) lbs. hrs.
Oil bbls., 1st 24 hrs.
Fresh water: 110 feet feet
Salt water: 1270 feet feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10 — 10-3/4"	34'0"	34'0"	Size of
8¼ — 6-5/8"	1176'2"	1176'2"	
6⅝ — 7"	1654'0"	1654'0"	Depth set
5 3/16			
3			Perf. top
2 — 2-3/8"	1762'	1762'	Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED — SIZE — No. Ft. — Date
See Below

COAL WAS ENCOUNTERED AT ___ FEET ___ INCHES ___ FEET ___ INCHES
___ FEET ___ INCHES ___ FEET ___ INCHES
___ FEET ___ INCHES ___ FEET ___ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Soil			0	14			
Lime			14	45			
Sand			45	92			
Slate			92	110			
Lime			110	140	Fr. Water	110	Hole Full
Sand			140	160			
Slate			160	173			
Red Rock			173	210			
Slate			210	240			
Red Rock			240	270			
Slate			270	340			
Red Rock			340	360			
Lime			360	380			
Slate			380	452			
Lime			452	472 SLM			
Sand			472 SLM	523			
Slate			523	560			
Sand			563	647			
Slate			647	662			
Sand			662	677			
[illegible]			677	700			
[illegible]			700	745			
Slate			745	775			
Sand			775	852			
Slate			852	882			
Sand			882	925			
Slate			925	930			
Sand			930	1010			
Slate			1010	1070			
Sand			1070	1115			
Slate & Shells			1115	1150			
Salt Sand			1150	1632	Oil	1185	Small Show
Slate			1632	1634 SLM	Gas	1250	Show - exhausted 3 hrs.
Big Lime			1634 SLM	1700			
Sand			1700	1703	Sa. Water	1270	Hole Full
Lime			1703	1756	Gas	1728-32	4/10 W 1"
TOTAL DEPTH				1756	Gas	1733	8/10 W 1"
					Gas	1757	8/10 W 1"
				OIL	Pay 1728-32	1757-61	

(Over)

MAY 1947
WEST VIRGINIA
DEPARTMENT OF MINES

39-1354

(Oats)

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks

CEMENT RECORD:

3-11-47 8-5/8" casing. Ran 5 sacks aquagel and 25% Fibrotex. No circulation or returns.

3-27-47 7" casing. Ran 12 sacks aquagel mixed 6% Fibrotex. Circulation and returns. Pipe frozen after running aquagel - freed by running 5½" bailer 25 times.

Ran 12 sacks Alpha cement in dump bailer. Picked pipe up 25' and set down in cement. 40' cement in hole.
Elmer Harper, Cementer.

Date April 24, 1947

APPROVED COLUMBIAN CARBON COMPANY, Owner

By O. H. Van Fossen, Sup't.
(Title)

39-11-14

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Permit No. KAN-1146 — Oil or Gas Well Oil (KIND)

Company Columbian Carbon Company
Address Box 873, Charleston 23, W. Va.
Farm H. H. Parsons, et al — Acres 117
Location (waters) Leatherwood Creek
Well No. Gu-1052, R-9 — Elev. 837.81' G
District Peca — County Kanawha
The surface of tract is owned in fee by H. H. Parsons
Rt. 2, Box 75 — Address Elkview, W. Va.
Mineral rights are owned by H. H. Parsons, et al
(For further addresses see contract C.C.V.)
Address
Drilling commenced 3-19-48
Drilling completed 4-21-48
Date Shot not shot — From — To
With
Open Flow 8/10ths Water in 1" Inch
/10ths Merc. in Inch
Volume 29,800 cubic feet Cu. Ft.
Rock Pressure lbs. hrs.
Oil approx. 5 bbls. oil daily bbls., 1st 24 hrs.
Fresh water feet feet
Salt water 1170' 1628-30' feet feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer none
13			
10 3/4"	16'8"	16'8"	Size of
8 1/4" 25#	384'6"	pulled	
6 5/8" 7" 22#	1569'10"	1569'10"	Depth set
5 3/16			
4			Perf. top
3 3/8" 14#	1677'10"	1677'10"	Perf. bottom
Liners Used 2" tubing disc			Perf. top
			Perf. bottom

CASING CEMENTED SIZE No. Ft. Date
see below

COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Soil			0	22			
Sand			22	65			
Slate			65	76			
Red Rock			76	112			
Slate			112	160			
Red Rock			160	180			
Slate			180	230			
Red Rock			230	258			
Slate			258	265			
Red Rock			265	295			
Slate			295	373			
Sand	381'DLK-381'SLK		373	572			
Slate			572	583			
Sand			583	612			
Slate & Shells			612	690			
Sand			690	775			
Slate			775	804			
Sand			804	888			
Slate			888	1002			
Sand			1002	[illegible]			
Slate			1038	[illegible]	Oil	1080-1086'	show
Sand			1066	1127			
Slate			1127	1154	S. water	1170'	hole full
Blue Slate			1154	1160			
Black Lime			1160	1502			
Keen Sand			1502	1550	Gas	1595'	show
Big Lime	1560'DLK-1560'SLK		1550	1675'	S. water	1628-30'	100'
					Gas Pay	1595' show	
		TOTAL DEPTH		1675'		1620-25'	3/10 in. 1"-29,800 cubic feet

ORIGINAL RECORD

3-25-48 8-5/8" casing. Ran 5 sacks Aquagel. Circulation and returns. Columbian Carbon Company Crew.

4-27-48 7" casing - dumped 15 sacks Alpha Cement on bottom. Columbian Carbon Company Crew.

Oil 1595' 1620-30'

5-19-48

MAY 1948 WEST VIRGINIA DEPARTMENT OF MINES

(Over)

39-1416

LOG OF WELL

CODE OH-1052 — Columbian Carbon Co (COMPANY) — SHEET

STATE West Virginia — DISTRICT Poca — COUNTY Kanawha

LEASE H.H. Parsons, et al — WELL NO. B-9 — SEC. — TWP. — R.

DATE OF LOG May 19, 1918 — LOCATION IN SEC. Leatherwood Creek

LOCATION MADE 1-26-18 — COMM. RIGGING UP 3-1-18 — COMM. DRILLING 3-19-18 — COMP. DRILLING 5-1-18

TOTAL DEPTH 1675' — ELEVATION 837.8'@ — STATE PERMIT NO. KAN-1416

DAY DRILLER S. E. McCallister — NIGHT DRILLER H. E. Miller — CONTRACTOR Harry Wines

CABLE TOOLS FROM 0 TO 1675' — ROTARY TOOLS FROM — TO

approx. 5 bbls oil daily and

OPEN FLOW CAPACITY 29,800 M. CU. FT. — ROCK PRESSURE — GASOLINE CONTENT PER M. CU. FT.

DEPTH IN SAND 125' — PRODUCING SANDS AND THICKNESS OF EACH Payne Gas 1620-23' Oil 1595' 1628-30'

PRODUCTION FIRST 24 HOURS — SETTLED PRODUCTION — STARTED PRODUCTION 7

DATE TUBED 5-5-18 — SYPHON SET — SIZE — FEET

CASING RECORD

SIZE	WEIGHT	PUT IN WELL FEET	PUT IN WELL IN.	PULLED OUT FEET	PULLED OUT IN.	LEFT IN WELL FEET	LEFT IN WELL IN.	SHOES LENGTH	SHOES MAKE	PACKERS KIND	PACKERS LENGTH	PACKERS SET
10 3/4"		16	8	-	-	16	8					
8-5/8"	25.55#	384	6	384	6	-	-	8" shoe	pulled			
7"	22#	1569	10	-	-	1569	10	7" shoe				

LINER: STATE SIZE AND WEIGHT None — WHERE SET — FT. AND INS. BLANK — FT. AND INS. PERFORATED

HOW PUT TOGETHER — COUPLING — FLUSH-JOINT — INSERTED

REMARKS

EQUIPMENT RECORD

TUBING SIZE	TUBING WEIGHT	TUBING FEET	TUBING IN.	SUCKER RODS FEET	SUCKER RODS IN.	SUCKER RODS SIZE AND KIND	PUMPING OUTFIT DESCRIPTION, KIND, SIZE, ETC.
2-3/8"	4#	1677	10	1-2"	tubing	disc	

KIND OF SHOT not shot — SIZE OF SHOT, QUARTS — NUMBER OF SHOTS

NUMBER OF SHELLS — SIZE OF SHELLS — INCHES, DIAMETER

LENGTH OF SHELL FT. — INJ. SHOT FURNISHED BY — TOP OF SHOT

BOTTOM OF SHOT — ANCHOR — WELL BRIDGED TO

PRODUCTION BEFORE SHOT — PRODUCTION AFTER SHOT

NAME OF SHOOTER — SHOT INSPECTED BY (COMPANY EMPLOYEE)

COMMENCED DRILLING DEEPER — COMPLETED DRILLING DEEPER

TOTAL DEPTH — PRODUCTION FIRST 24 HOURS — SETTLED PRODUCTION

REMARKS: Ran rods and put pump to pumping 5-7-18

2-E. A. Cover
1-V. Cotner
1-V. C. VanDeLinde
1-file

NOTE: IF WELL WAS DRY, STATE UNDER REMARKS, WHEN, HOW, AND BY WHOM PLUGGED.
STATE UNDER REMARKS ANYTHING OF INTEREST NOT COVERED IN LOG.
IF SPACE PROVIDED FOR REMARKS IS NOT SUFFICIENT WRITE ON BOTTOM OF LAST SHEET OF LOG.

FORM G-19 PG 8078

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Permit No. KAN-1287 | Oil or Gas Well GAS & OIL (KIND)

Company	Columbian Carbon Company
Address	Box 873, Charleston 23, W. Va.
Farm	H. H. Parsons, et al — Acres 57
Location (waters)	Branch of Leatherwood Creek
Well No.	A-2 (C-914) — Elev. 937.8 DF
District	Poca — County Kanawha
The surface of tract is owned in fee by	H. H. Parsons, et al — Address Elkview, W. Va.
Mineral rights are owned by	H. H. Parsons, et al (for further addresses contact Columbian Carbon) — Address
Drilling commenced	9-23-46
Drilling completed	10-26-46
Date Shot	not shot — From — To
With	Acidized Oil Pay 10-28-46 with 1500 gal.
Open Flow	80/10ths Water in 2" Inch
	/10ths Merc. in — Inch
Volume	377,000 Cu. Ft.
Rock Pressure	405 lbs. 24 hrs.
Oil	50 bbls., 1st 24 hrs.
Fresh water	477' feet — feet
Salt water	1255' feet — feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer Wideot Bottom Hole
13			
10 ¾"	323'3"	323'3"	Size of 7"
8¼"	1814'0"	pulled	
6⅝ 7" 5½	1676'6"	1676'6"	Depth set 1664' SLM
5 3/16			
3			Perf. top
2 3/8"	1757'4"	1757'4"	Perf. bottom
w/ working barrel			
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED ____ SIZE ____ No. Ft. ____ Date
see reverse side

COAL WAS ENCOUNTERED AT 693 FEET 96 INCHES
____ FEET ____ INCHES ____ FEET ____ INCHES
____ FEET ____ INCHES ____ FEET ____ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Soil			0	20			
Slate			20	50			
Sand			50	65			
Slate			65	85			
Sand			85	100			
Red Rock			100	150			
Sand			150	160			
Slate			160	175			
Red Rock			175	273			
Slate			275	290			
Sand			290	314			
Slate			314	339			
Red Rock			339	396			
Sand			396	406			
Slate & Sand			406	450			
Sand			450	540	F. water	477'	1/2-8" blr.
Slate			510	575			
Sand			675	685			
Lime			685	[illegible]			
Coal			693	[illegible]			
Slate			701	[illegible]			
Sand			755	7[illegible]			
Slate			750	818			
Sand			818	854			
Slate			854	886			
Sand			886	941			
Slate			941	1000			
Sand			1000	1025			
Slate			1025	1035			
Sand			1035	1055			
Slate			1055	1085			
Sand			1085	1130			
Slate			1130	1255	S. water	1255'	hole full
Settling Sand			1255	1285			
Salt Sand			1285	1380			
Slate			1380	1390			
Lime			1390	1400			
Salt Sand			1400	1555 (over)			

NOV 1946 — WEST VIRGINIA DEPARTMENT OF MINES

(Over)

39-1287

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Little Lime			1556	1596			
Sand	1655'SLM-1628'DLM		1596	1635 SLM			
Big Lime	1664'SLM-1657'DLM		1655'SLM	1756½'			
		TOTAL DEPTH -	- - - - -	1756½'	PAYS: Gas - 1668' 89/10 W. 2" 377MCF Oil - 1742-1750' made 50 bbls. first 24 hours		

CEMENT RECORD

9-28-46 — 8-5/8" casing - Ran 6 sacks Aquagel and 20# Fibertex. Circulation and returns at 576'. Columbian Carbon Company Crew.

10-18-46 — 7" casing - ran 12 sacks Aquagel and 2 bales Fibertex. Got circulation at 900'. Pumped plug to 1850' - pipe froze and wouldn't move until about a dozen bailers of water were bailed off and hole back flushed. Columbian Carbon Company Crew.

10-31-46 — Ran 2-3/8" tubing with working barrel.

Date Nov. 22, 1946

APPROVED Columbian Carbon Company, Owner

By [illegible]
(Title)

08-10

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Plat Kan-1354

WELL RECORD

Permit No. KAN-1355

Oil or Gas Well OIL (KIND)

Company	[illegible] CARBON COMPANY
Address	Box 873, Charleston 23, W. Va.
Farm	H. H. Parsons — Acres 57
Location (waters)	Leatherwood Creek
Well No.	A-4 (GW-941) — Elev. 955.9 G
District	Poca — County Kanawha
The surface of tract is owned in fee by	
Address	
Mineral rights are owned by	
Address	
Drilling commenced	3-18-47
Drilling completed	4-29-47
Date Shot	From — To
With	
Open Flow	/10ths Water in — Inch
	/10ths Merc. in — Inch
Volume	Cu. Ft.
Rock Pressure	lbs. — hrs.
Oil	60 bbls., 1st 24 hrs.
Fresh water	680' feet — feet
Salt water	1202' feet — feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			
10-3/4"	24'6"	24'6"	Size of
8-5/8"	1072'11"	0	
6⅝ 7"	1652'11"	1652'11"	Depth set
5 3/16			
3			Perf. top
2 3/8"	1752'3"	1752'3"	Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED ______ SIZE ______ No. Ft. ______ Date
See Below

COAL WAS ENCOUNTERED AT 579 FEET ______ INCHES
______ FEET ______ INCHES ______ FEET ______ INCHES
______ FEET ______ INCHES ______ FEET ______ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Surface			0	36			
Sand			36	93			
Slate			93	113			
Red Rock			113	143			
Sand			143	177			
Red Rock			177	316			
Slate			316	400			
Sand			400	440			
Slate Shell			440	467			
Sand			467	579			
Slate & Coal			579	585			
Sand			585	685	Fresh Water	680	1½-6" Bls./Hr.
Slate			685	752			
Sand			752	777			
Slate			777	810			
Sand			810	870			
Slate & Shells			870	980			
Sand			980	946			
Slate & Shells			946	[illegible]	Gas	1194	2/10 W 1" - Exhausted
Salt Sand			1181	[illegible] SLM			
Big Lime			1658 SLM	[illegible]	Oil	1194	Est. 1 bbl./day
					Salt Water	1202	Hole full
TOTAL DEPTH				[illegible]			
					PAY: 1723-46		

CEMENT RECORD:

3-26-47 8-5/8" casing. Ran 6 sacks Aquagel mixed 6% Fibrotex. Circulation and returns.

4-14-47 7" casing. Ran 12 sacks Aquagel mixed 6% Fibrotex. Circulation and returns.

Ran 11 sacks Alpha cement in dump bailer with pipe 27' off bottom. Set pipe down in cement. 50' cement in hole.

MAY 1947
WEST VIRGINIA
DEPARTMENT OF MINES

(Over)

OG-10

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Kenna
Plat - Kan - B85

WELL RECORD

Permit No. KAN-1586

Oil or Gas Well: OIL WELL (KIND)

Company: Columbian Carbon Company
Address: Box 873, Charleston 23, W. Va.
Farm: W. H. Parsons, et al — Acres: 117
Location (waters): Leatherwood Creek
Well No.: GW-976 - B-7 — Elev.: 973.7' G
District: Penn — County: Kanawha
The surface of tract is owned in fee by: H. H. Parsons
Rt. #2, Box 75 — Address: Elkview, W. Va.
Mineral rights are owned by: H. H. Parsons, et al (for further addresses contact Columbian Carbon) — Address
Drilling commenced: 10-15-47
Drilling completed: 11-27-47
Date Shot: not shot — From — To
With: acidized 11-29-47 with 1000 gallons acid
Open Flow: 4/10ths Water in 2 Inch
/10ths Merc. in — Inch
Volume: 84,000 Cu. Ft.
Rock Pressure — lbs. — hrs.
Oil: Approx. 70 bbls. daily — bbls., 1st 24 hrs.
Fresh water — feet — feet
Salt water: 1273' 1425' feet — feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer: none
13			
10 3/4"	21'	21'	Size of
8 1/4" 25.55#	514'	pulled	
6 5/8 7"	1714'6"	1714'6"	Depth set
5 3/16			
3			Perf. top
2 3/8" 1.4#	1762'6"	1762'6"	Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED — SIZE — No. Ft. — Date
see reverse side

COAL WAS ENCOUNTERED AT none FEET — INCHES
— FEET — INCHES — FEET — INCHES
— FEET — INCHES — FEET — INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Top soil			0	15			
Slate			15	69			
Sand			69	75			
Lime			75	92			
Sand			92	131			
Lime			131	138			
Red Rock			138	162			
Blue Slate			162	179			
Sand			179	222			
Red Rock			222	280			
Blue Slate			280	305			
Red Rock			305	322			
Blue Slate			322	344			
Sand			344	361			
Slate			361	370			
Red Rock			370	419			
Gray Slate			419	464			
Sand			464	479			
Slate			479	494			
Sand			494	497			
Slate			497	507			
Sand			507	707			
Slate			707	716			
Gritty Lime			718	769			
Sand			769	784			
Slate			784	822			
Sand			822	902			
Slate			902	930			
Sand			930	1011			
Slate			1011	1127			
Sand			1127	1168			
Slate			1169	1217	Oil & Gas	1165'	show
Salt Sand			1217	1613	S. Water	1273'	hole full
Gritty Lime			1613	1681	S. water	1425'	hole full
Sand			1681	1693			
Slate & Lime			1693	1707' DLM			
				1697' SLM	Gas	1755'	4/10 W. 2" SLM
Big Lime			1697' SLM	1770'	Oil	1762'	- 50 bbls. 9 hours
			Total depth - - -	1770'			

DEC 1947
WEST VIRGINIA
DEPARTMENT OF MINES

(Over)

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
CEMENT RECORD							
10-27-47	8-5/8" casing. Ran 6 sacks Aquagel. Columbian Carbon Company Crew.						
11-19-47	7" casing. Ran 12 sacks Aquagel mixed with 2% Fibertex. Circulation and returns. Dumped 1 sacks cement around pipe. Columbian Carbon Crew.						

39-1386

Date December 10, 19 47

Columbian Carbon Company

VED Owner

By O. W. Van Petten, Supt't

(Title)

OG-10

Kanawha

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Permit No. KAN 1371 — Oil or Gas Well Oil (KIND)

Company LEATHERWOOD OIL & GAS COMPANY
Address P.O. Box 2151, Charleston, W.Va.
Farm Laura M. Flowers — Acres 76
Location (waters) Poca River (Leatherwood Creek)
Well No. 1 — Elev. 1089.7
District Poca — County Kanawha
The surface of tract is owned in fee by Madison Flowers Et Al
Address Charleston, W.Va.
Mineral rights are owned by Madison Flowers Et Al
Address Charleston, W.Va.
Drilling commenced June 19, 1947
Drilling completed September 15, 1947
Date Acidized 9/15/47 — From 1949' To 1843'
With 1,000 Gals.
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Cu. Ft.
Rock Pressure lbs. hrs.
Oil 95 bbls., 1st 24 hrs.
Fresh water feet feet
Salt water feet 1418' feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			Hookwall
10			Size of
8¼	505'	None	
7"OD	1807'	1807'	Depth set 1807'
6 3/16			
3			Perf. top 1860'
2	1949'	1949'	Perf. bottom 1874'
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED 7"OD SIZE No. Ft. 82' Date July 19, 1947.

COAL WAS ENCOUNTERED AT FEET INCHES
FEET INCHES FEET INCHES
FEET INCHES FEET INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Surface			0	6			
Red Rock			6	15			
Slate			15	45			
Red Rock			45	50			
Slate			50	100			
Red Rock			100	135			
Sand			135	170			
Slate			170	250			
Red Rock			250	340			
Slate			340	390			
Red Rock			390	425			
Slate			425	475			
Red Rock			475	505			
Slate Shells			505	595			
Sand			595	760			
Slate & Shells			760	915			
Sand			915	1040			
Slate & Shells			1040	1070			
Sand			1070	1150			
Slate & Shells			1150	1310			
Salt Sand			1310	1797	Show Gas	1408-10'	
Break			1797	1799	S. Water	1418'	Hole Full
Big Lime			1799	1954	Oil	1834-68'	Hole filled 500' 2½ Hrs.
Injun Sand			1954	1965			
Total Depth			1965				

Notes: Filled back to 1949'

(Over)

APPENDIX D

Public Service District Affidavit

Underground Injection Control Permit applicants must identify all publically recorded drinking water sources within a one (1) mile radius of the proposed injection well facility. If no drinking water sources are present within this radius a written affidavit shall be supplied by the local Public Service District (PSD) as ample verification.

"I certify under penalty of law that (state name of business)

_____

has verified with the public service district (state name of PSD)

_____

that there are no such publically recorded sources.

_____

(Signature of Authorized Representative)

Sworn and subscribed to before me this _____ day of _____, 20____.

_____, my commission expires _____

(Notary Signature)

_____.

Dropped off to PSD 9-1-22
RD

(7/2022)

APPENDIX E
Water Sources

Operator: Base Petroleum
Year: 2022
UIC Permit #: 2D03900644

		Source # ___	Source # ___	Source # ___	Source # ___
Water Source Name		Tyree Water Well			
Northing					
Easting					
Parameter	Units				
Aluminum	mg/L	.51			
Arsenic	mg/L	U			
Barium	mg/L	.056			
Bromide	mg/L	U			
Calcium	mg/L	19.6			
Chloride	mg/L	1.44			
Detergents (MBAS)	mg/L	.02 J			
Iron	mg/L	.64			
Manganese	mg/L	.353			
pH	SU	7.6			
Sodium	mg/L	1.66			
Strontium	mg/L	.064			
Sulfate	mg/L	5.62 J			
Total Dissolved Solids (TDS)	mg/L	88			
Bacteria (Total Coliform)	c/100ml	Total Col - 405 E. Coli - No			

Appendix E – Water Sources

No water wells exist within the ¼ mile radius as all of the area is covered by public water supply.

Sampled Tyree Water Well

Sturm Environmental Services

Notice of Non-Conformance

VICTORIA L. HOOPS, PRESIDENT

This non-conformance sheet is being used for the following reasons:

Client KERMIT TYREE

Date/Time Received: 9-29-22

☐ Chain of Custody does not meet one or more of the requirements of 47 CSR 32 5.1.1a-h.

☐ _____

_____

_____

Explanation of any items checked:

☐ **Sample(s) not properly preserved by 40 CFR 136.**
☐ **Temperature of sample(s) received is not ≤ 6 °C.**
☐ **Temperature of biological sample(s) received are not < 10 °C.**
☐ **Sample(s) received frozen.**
☐ **Sample(s) received outside of EPA maximum holding time.**
☐ **Sample(s) not received in EPA approved container(s).**
☒ Chain of Custody is missing one or more; sampling location, date and time of collection, collector's name, type(s) of preservation, number of containers per sample, type of sample (grab or composite) and any remarks.
☐ Sample ID's not labeled on container(s) and/or chain of custody.
☐ Chain of Custody not signed by client during one or more transfers.
☐ No Chain of Custody form received with sample(s)
☒ See Narrative

(644) Oil present in sample. Lab had to spin sample. ~~to make~~

10/13/22 mm

_____

_____

☐ **Chain of Custody marked indicating one or more samples were improperly preserved.**

☐ **Analytical data resulting from samples improperly preserved will not be accepted as being in compliance.**

Receiving Technician Signature: _____

MAIN OFFICE AND LABORATORY—POST OFFICE BOX 650 • BRIDGEPORT, WEST VIRGINIA 26330 • (304) 623-6549
CHARLESTON FIELD OFFICE—POST OFFICE BOX 8337 • SOUTH CHARLESTON, WEST VIRGINIA 25303-0337 • (304) 744-9864

WATER WELL

CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: Kermit Tyree
Address: 6662 Harrens Fk Rd
City/State/Zip: KLKVIEW, WV 25071
Contact Person: Gene Smith + Rod Dillon
Telephone Number: 304-546-5214 Fax No.
Email Address:
Sampler Name: (Print) Gene Smith
Sampler Signature: Gene Smith
Project Name: Tyree Water Well
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name: Same
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:

TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One*
Date Needed

1 DAY ☐ 2 DAY ☐ 3 DAY

Sample ID / Description	COMPOSITE SAMPLE START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE DATE	TIME	PRESERVATIVE Ice	OTHER	$Na_2S_2O_3$ Tx/FC	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	pH, Cl, m/BAS	TDS, SO_4	METHOD/ANALYSES Al, As, Ba, Ca	Fe, Mn, Na, Sr	Br	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
Tyree Water Well														Y	X					X	X	X	X	X	X	3						

Comments

Records retained for 5 years

Relinquished by	Date	Time	Received by	Date	Time
Gene Smith	9/23/22	1:00			
Josh	9.29.22	2050	LL	9.29.22	2050

Laboratory Comments:
Temperature Upon Receipt: 5.6
Bottles Preserved? N
Temp upon Receipt.

Sturm Environmental Services

VICTORIA L. HOOPS, PRESIDENT

COMPANY: KERMIT TYREE

SAMPLE ID: TYREE WATER WELL

SAMPLED BY: G. SMITH

DATE/TIME SAMPLED:* C

DATE/TIME RECEIVED: 09-29-22 2050

LABORATORY ID: KT 220929-1

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	MINIMUM REPORTING LIMIT	DATE/TIME ANALYZED	ANALYST
pH O	7.6	units	SM22nd 4500 HB	.1	2.-10	10-03-22 1035	ZT
TDS	88	mg/L	USGS I-1750-85	4	4	10-04-22 1241	MRM/KS
SO_4	5.62 J	mg/L	EPA 300.0 Rev 2.1-1993	1.0	10.0	10-06-22 0055	DC
Cl^-	1.44	mg/L	EPA 300.0 Rev 2.1-1993	1.0	1.0	10-06-22 1628	DC
MBAS	.02 J	mg/L	SM22nd 5540C	.02	.04	09-30-22 1714	SW
Al	.51	mg/L	EPA 200.7 Rev 4.4-1994	.04	.25	10-06-22 1004	DB
As	U	mg/L	EPA 200.9 Rev 2.2 1994	.0025	.005	10-04-22 1349	RC
Ba	.056	mg/L	EPA 200.7 Rev 4.4-1994	.003	.05	10-06-22 1004	DB
Br	U	mg/L	EPA 300.0 Rev 2.1-1993	.10	.50	10-04-22 1745	DC
Ca	19.6	mg/L	EPA 200.7 Rev 4.4-1994	.15	.50	10-06-22 1004	DB
Fe	.64	mg/L	EPA 200.7 Rev 4.4-1994	.05	.25	10-06-22 1004	DB
Mn	.353	mg/L	EPA 200.7 Rev 4.4-1994	.002	.05	10-06-22 1004	DB
Na	1.66	mg/L	EPA 200.7 Rev 4.4-1994	.03	.50	10-06-22 1004	DB
Sr	.064	mg/L	EPA 200.7 Rev 4.4-1994	.002	.05	10-07-22 0829	DB

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.
E Estimated Reported value exceeded calibration range.
J Reported value is an estimate because concentration is less than reporting limit
PND Precision not determined.
R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and or re-analysis is necessary.
RND Recovery not determined.
U Compound was analyzed for, but not detected.
O Out of holding. Time does not meet 40 CFR 136/141 compliance.
T This result is not supported by our certification ID.
A Does not meet 40 CFR 136/141 compliance.
C Does not meet 47 CSR 32 compliance.

Narrative:C: NO DATE/TIME SAMPLED ON COC.

Approved

Sturm Environmental Services

VICTORIA L. HOOPS, PRESIDENT

COMPANY: KERMIT TYREE

SAMPLE ID: TYREE WATER WELL

SAMPLED BY: C

LOG NO: W654-22

DATE/TIME SAMPLED: * C

DATE/TIME RECEIVED: 09-29-22 2050

LABORATORY ID: LIMS 281

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	DATE/TIME ANALYZED	ANALYST
Total Coliform	PRESENT[1]	P/A (Cfu)	9223 Colilert	1	09-30-22 1000	LM
E Coli	ABSENT[1]	P/A (Cfu)	9223 Colilert	1	09-30-22 1000	LM

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Microbiological analysis results will be discarded after 5 years

Method of Analysis from "Standard Methods for the Examination of Water and Wastewater."

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.
E Estimated Reported value exceeded calibration range.
J Reported value is an estimate because concentration is less than reporting limit.
PND Precision not determined.
R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and/or re-analysis is necessary.
RND Recovery not determined.
U Compound was analyzed for, but not detected.
O Out of holding. Time does not meet 40 CFR 136/141 compliance.
T This result is not supported by our certification ID.
A Does not meet 40 CFR 136/141 compliance.
C Does not meet 47 CSR 32 compliance.

Narrative:C: NO DATE/TIME SAMPLED ON COC.

[1]OIL PRESENT IN SAMPLE.

Approved _____

Section 8

Geological Data Injection and Confining Zones

SECTION 6: Desciption of the injection zone

A. Injection Zone - Big Lime

1. General Desciption - The Big lime, or Greenbrier Limestone, is of the Mississippian Era. It is a marine sediment and calcareous in nature. The Big Lime is usually representative of a shoal or reef structure. In the Poca District of Kanawha County, the Big Lime has a long history of oil and gas production.

2. Formation Thickness - Big Lime
   a. Total Thickness - 144' from 1560' to 1704'.
   b. Thickness of producing area - 18' from 1637' to 1655', see attached record.
   c. The primary producing section of the Big Lime is at its base. This was determined from available well records and also the offset logs Kan. 3464 and Kan. 3468 (attached). No logs are available for the Parsons A-1. The Big Lime producing area can be correlated from the offsets to the proposed disposal well.

3. Permiability - Big Lime
   a. Permiability is not available for the Big Lime in this area.
   b. Permiability can be determined by a pressure build up test or by coring the formation and examining the pore space characteristics via thin section.
   c. The permiability of the Big Lime in this area is caused by the pore space characteristics of the pores themselves and also the pore interconnections. The interconnections determine the passageway thickness and thus the permiability.
   d. Permiability can also be caused by fracturing. The fracturing of the Big Lime in this area is very minimal. Because of this, the Big Lime would make a very good disposal candidate as the disposed fluid is less likely to migrate to other formations. This has proven true for the existing oil production and the past history of thr Parsons A-1 as a pre-existing disposal well.

4. Parson A-1 History
   a. Well was completed on October 27, 1939.
   b. Target formation - Oriskany Sand formation - T.D. 5080'.
   c. Well was plugged back to the Big Lime on April 27, 1946.
   d. New P.B.T.D. - 1690'
   e. Due to the low volume of oil that the well produced, Cities Service Oil Company filed for a disposal permit on form WRD 1-69 on January 29, 1971 and the permit was issued on August 4, 1970. The well temporarily abandoned due to casing problems and the implementation of the new UIC Program and its requirements.

Michael W. Lewis, LLC
Independent Petroleum, Regulatory and Environmental Consultants
12 Jonsen Drive, Charleston WV 25312
304-382-5804
mikelewis@michaelwlewisllc.com

October 9, 2013

Mr. James Peterson, Environmental Resource Specialist
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304

Dear Mr. Peterson:

This letter is in response to your request for information on the general faulting trends in the Jakes Fork area of Kanawha County WV as it relates to the re-permitting of the Parsons No. 1-A disposal well by Base Petroleum Inc.

The formation being utilized for disposal in the Parsons No. 1-A well is the Big Lime Formation which is at an average depth of 1600' in the area. A review of well records for a number of wells drilled in the general area does not give any indication of faults in the area as the formation depths throughout the area are very consistent with no significant deviations noted, a fact further supported by a review of the structure and isopach maps submitted with the original UIC permit application. Research of geologic maps and reports was also conducted in order to determine the presence of any faults in the area that may have been identified by such data in the Big Injun or any other formations for which data existed. Mapping of the Big Lime in West Virginia by the West Virginia Geological Survey does not show the presence of any known faults which have been mapped in the state. As no faults were identified in the Big Lime, research was conducted to look at faults in other formations which could be used to identify faulting trends in the area.

A structure map of the Ordovician Section for the Appalachian Basin is provided on the following page in which faults are identified and mapped. This map does not indicate the presence of faults anywhere in the Kanawha County and surrounding areas. The faults identified on this map represent a general southwest/northeast trend with all mapped faults being well north of the Kanawha County area. The second map provided is for the Marcellus Shale with faults in the Onondaga Limestone mapped and showing a similar southwest/northeast trend in the northern part of the state in the same general locations of the Ordovician mapped faults. Finally in an effort to locate mapping information and data from a formation shallower than the Ordovician and Marcellus, the report from the Appalachian Tight Gas Reservoirs Project conducted by the WVGES was researched. This project evaluated well logs and data to extensively map a number of shallow gas plays in the

state creating an interactive mapping system which was used to create the final two maps provided. These maps show folds and faults throughout the state with the same general fault trends and locations as previously noted.

In summary, a variety of data in the form of well records, maps and reports were researched to determine the presence of or the absence thereof any faults in the area which could be possibly affected by the injection operations of the Parsons No. 1-A disposal well. Data was found indicating the presence of faults in the state and that mapping efforts had been undertaken but that all faults identified are at significant distance from the Kanawha County area and should have no impacts on continued injection operations at the Parsons No. 1-A disposal well.

Sincerely,

Michael W. Lewis
Michael W. Lewis LLC

G-11

STATE OF WEST VIRGINIA

DEPARTMENT OF MINES

OIL AND GAS DIVISION

INSPECTOR'S WELL REPORT

Permit No. Kan-644-p

Oil or Gas Well (KIND)

Company Columbia Carbon Company

Address Charleston West VA

Farm H. H. Parsons

Well No. GW-430 H. H. Parsons A-1

District Poca County Kanawha

Drilling commenced

Drilling completed Total depth

Date shot Depth of shot

Initial open flow /10ths Water in Inch

Open flow after tubing /10ths Merc. in Inch

Volume Cu. Ft.

Rock pressure lbs. hrs.

Oil bbls., 1st 24 hrs.

Fresh water feet feet

Salt water feet feet

CASING AND TUBING	USED IN DRILLING	LEFT IN WELL	PACKERS
Size			
16			Kind of Packer
13			
10			Size of
8¼			
6⅝			Depth set
5 3/16			
3			Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED SIZE No. FT. Date

COAL WAS ENCOUNTERED AT FEET INCHES

FEET INCHES FEET INCHES

FEET INCHES FEET INCHES

Drillers' Names E. M. Engel, Ralph Snyder,

Well Abandoned and Plugged 19

REMARKS Filled and Plugged To 1690 ft, Acadizing Lime Today, With 2000 Gal Trying For Production In Lime.

4/23/46
DATE

C. M. Hall
DISTRICT WELL INSPECTOR

SECTION [redacted]: Ground water discussion

As per the completion log, fresh water was encountered at 90' and at 100'.

As per the completion log, salt water was encountered at 1123' and 1180'.

The fresh water aquifers, as indicated by the completion report , indicate that the fresh water is from the Dunkard Group Series, which is Paleozoic and is found from 0' to approximately 400'. The Dunkard Group is primarily comprised of a series of sandstones, siltstones, red and gray shales and limestone in this area. Within the Dunkard Group the sandstones of the Casselman and Glenshaw Formations are the primary water producing stratas.

The ground waters primary source is precipitation and its percolation through the rock series to the resevoir where it is stored and eventually used for residential use in this area.

The Elk River Basin, of which this area is a part of, is typically characterized as having poor ground water quality. According to the Elk River Basin Atlas it is not unusual to see hardness higher than 120 mg/l, iron greater than 300 mg/l and elevated chlorides.

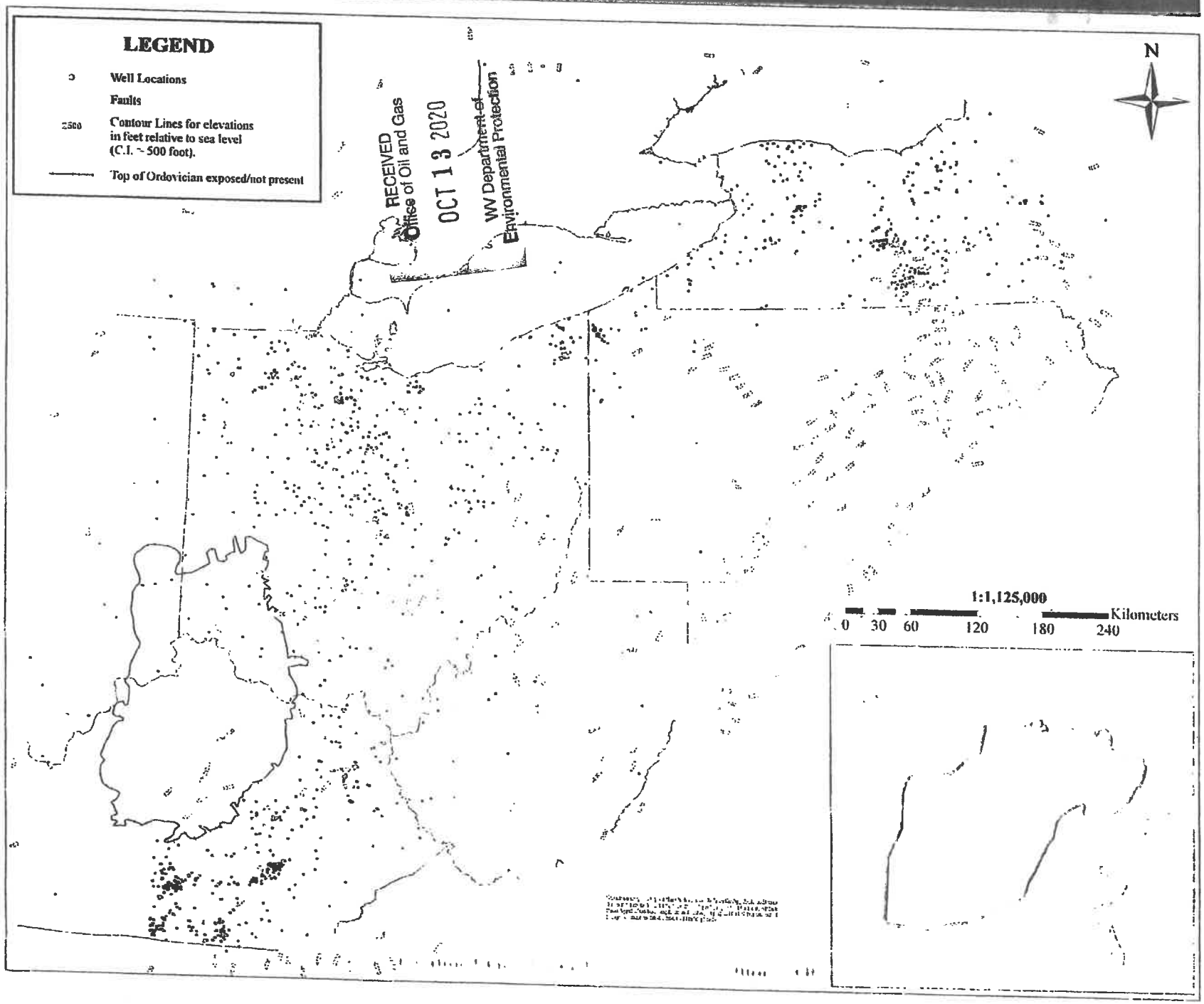
The yield potentials are higher when the scource rock is sandstone. Past studies have shown the following yields: Wells located in a valley where alluvium is the cover - 38 GPM, wells located in a valley where bedrock is the cover - 32 GPM, wells located on a hillside - 24 GPM, and wells located on a hilltop - 5 GPM. The alluvium is higher because precipitation has the greatest opportunity to migrate to the resevoir. All yields are dependent on the amount of rainfall and its availibilty to migrate to the resevoir. The greater the runoff the less the yield.

[redacted]Attached are two water well samples obtained from the immediate area. Please refer to the attached map which shows the location of the water well samples highlighted in blue, the proposed disposal well highlighted in green and the lease line highlighted in yellow.

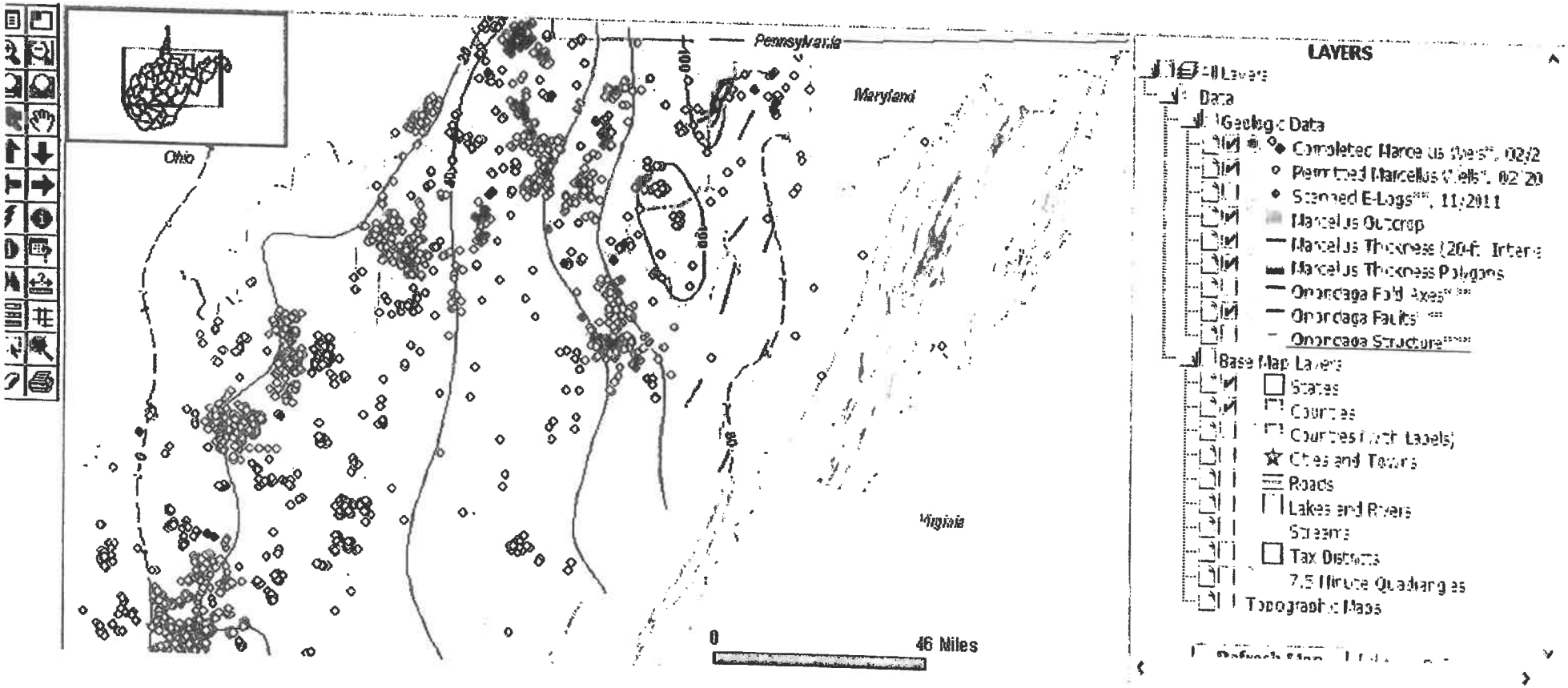
Sturm Environmental Services conducted all lab test. Sturm is located at Post office Box 8337, South Charleston W.V. 25303-0337. Phone (304) 744-9864.

No *logs were ever run* on *the Parson 1-A well. In the original permit application, a copy of the log* on *an offset Jones production well that was reworked was submitted* to *show the formation and properties.*

Plate 2-7 : Structure of the Top of the Ordovician Section



WVGES: Marcellus Shale Mapping System

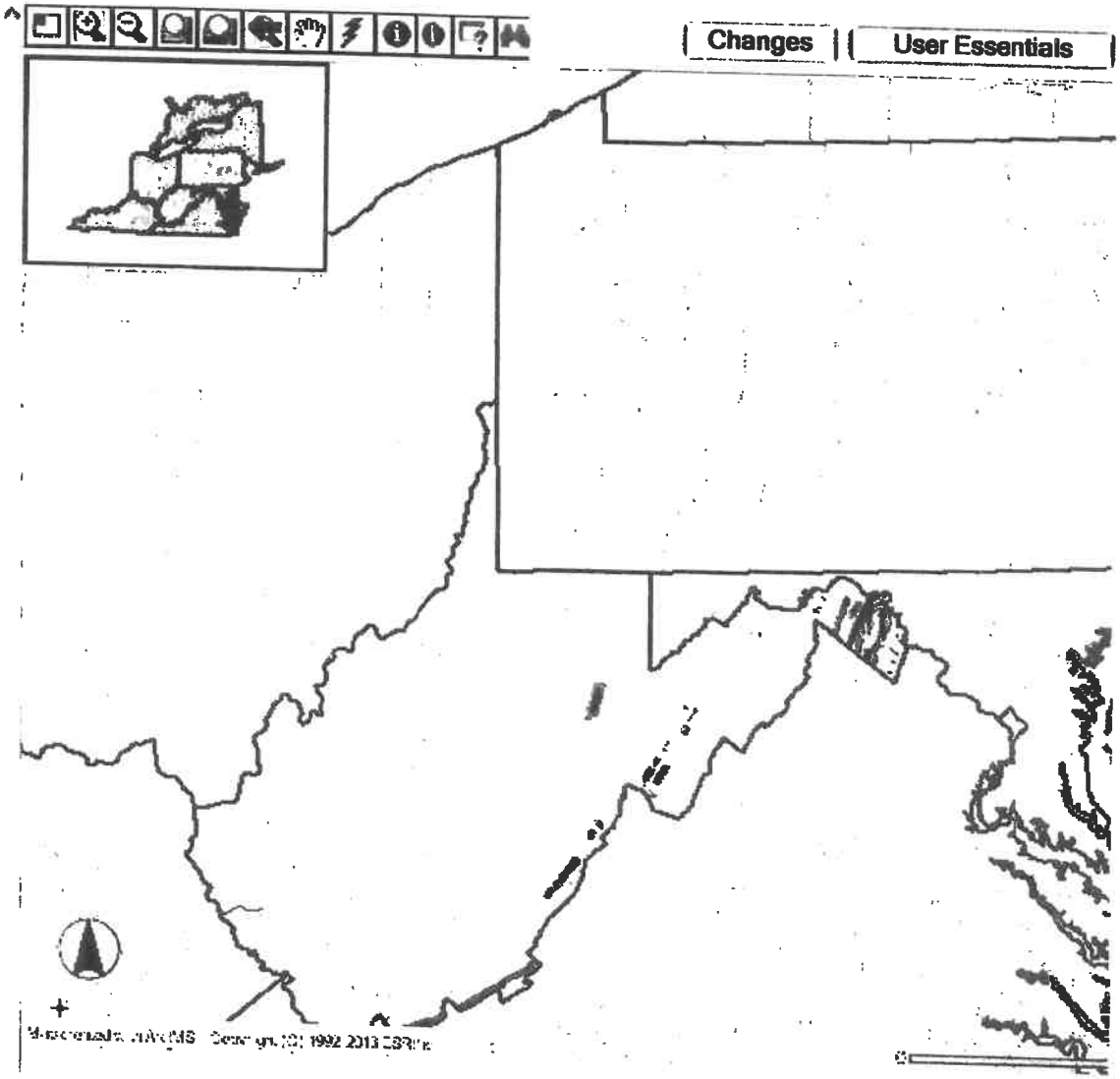


Appalachian Tight Gas

Refresh Map | Auto Refresh

LAYERS

- General Geography Layers
- General Geology Layers
  - All Gas and Oil Wells
  - Folds (WV Only)
  - Faults (WV Only)
  - Aeromagnetic Data (WV Only)
  - Gravity Data (WV Only)
  - Basic Stratigraphy
- Play-Specific Layers and Documents
  - ☐ Berea/Murrysville (BERE)
  - ☐ Venango (VNNG)
  - ☐ Bradford (BDFD)
  - ☐ Elk (ELK)
  - ☐ Medina/"Clinton" (MDIN)
  - ☐ Tuscarora (TCRR)

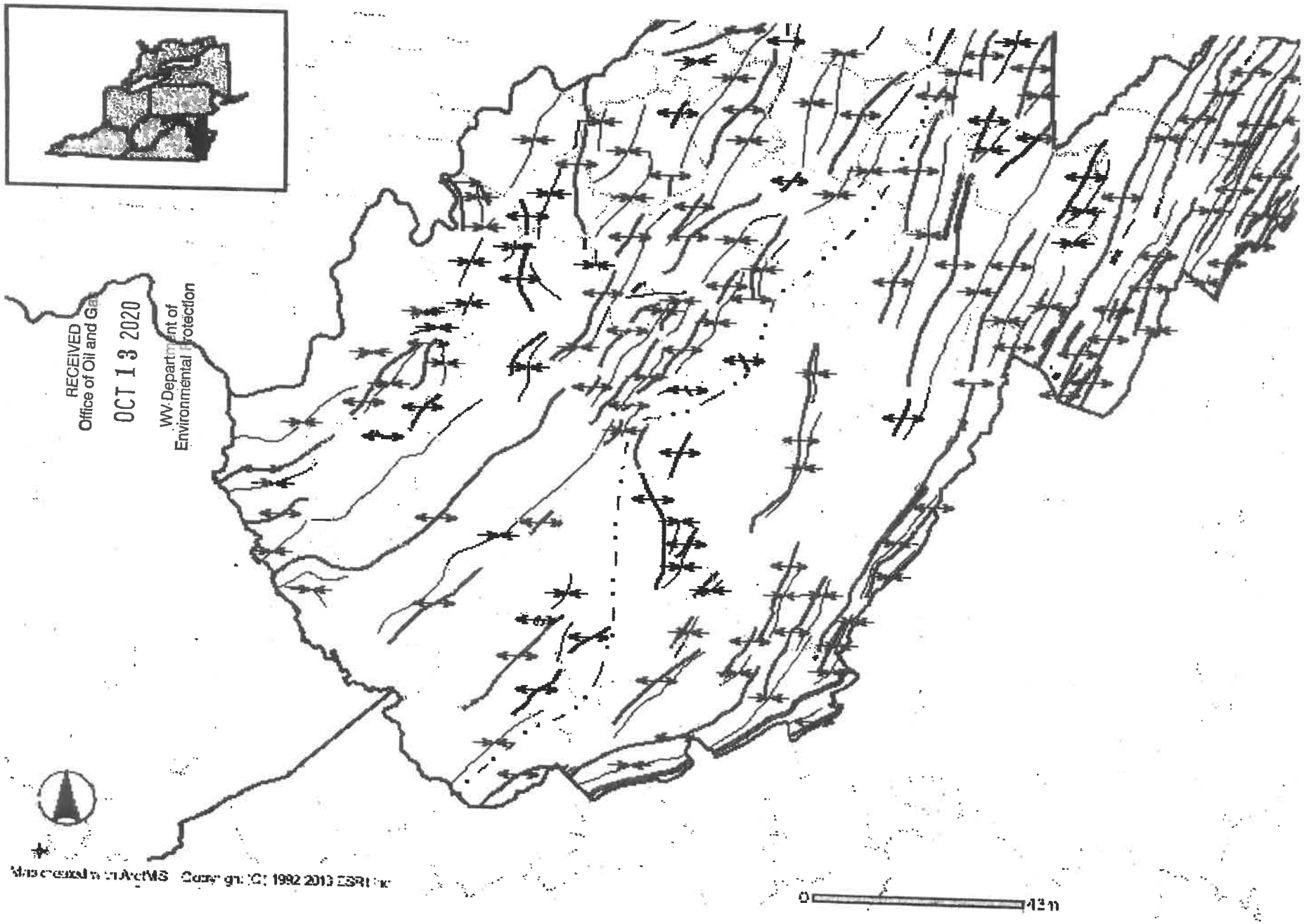


Refresh Map | Auto Refresh

Help:

- A closed group, click to open.
- An open group, click to close.
- A map layer.
- A hidden group/layer, click to make visible.
- A visible group/layer, click to hide.
- A visible layer, but not at this scale.
- A partially visible group, click to make visible.
- An inactive layer, click to make active.
- The active layer.
- Indicates a hyperlink to further information.

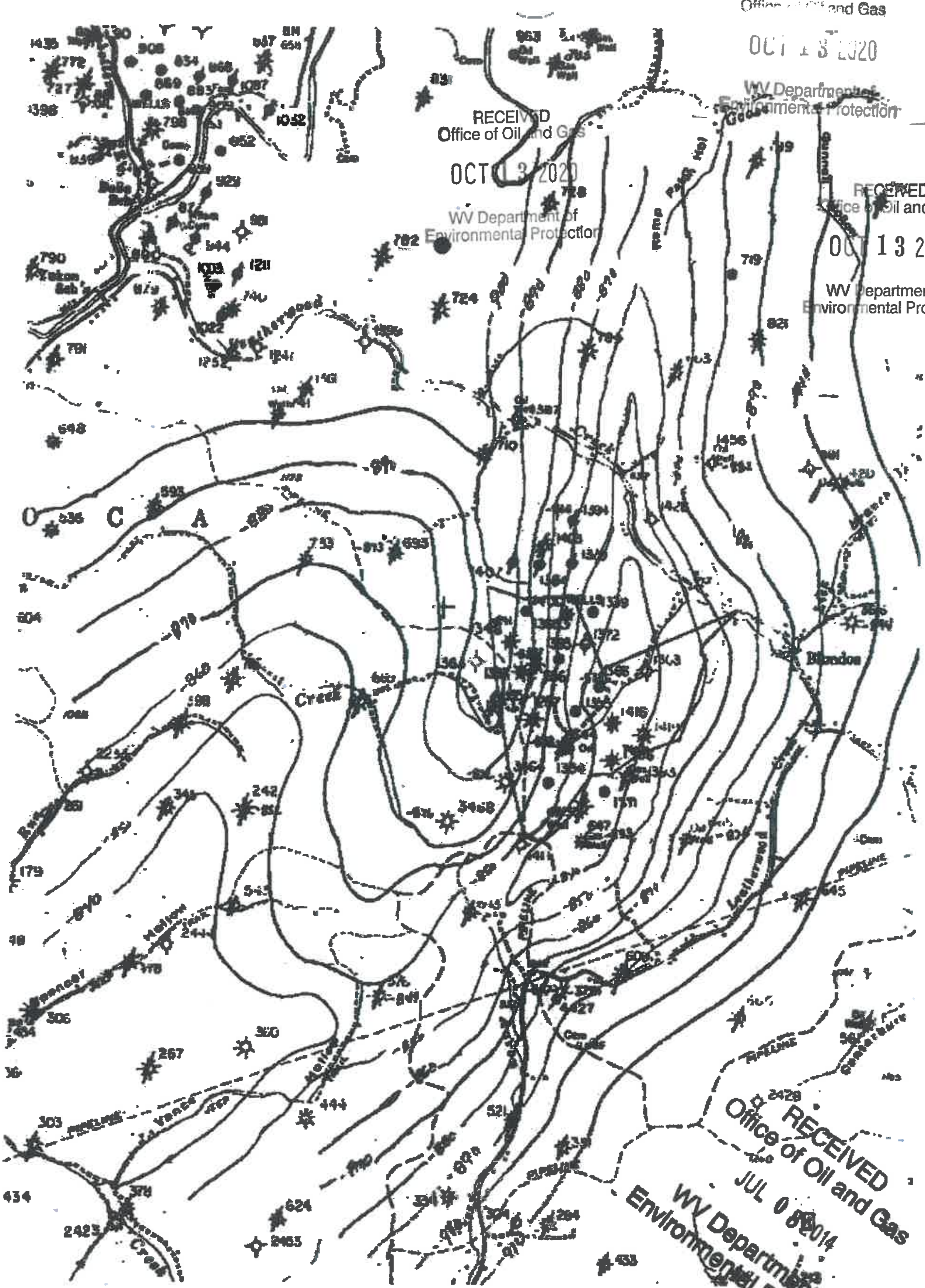
Zoom In

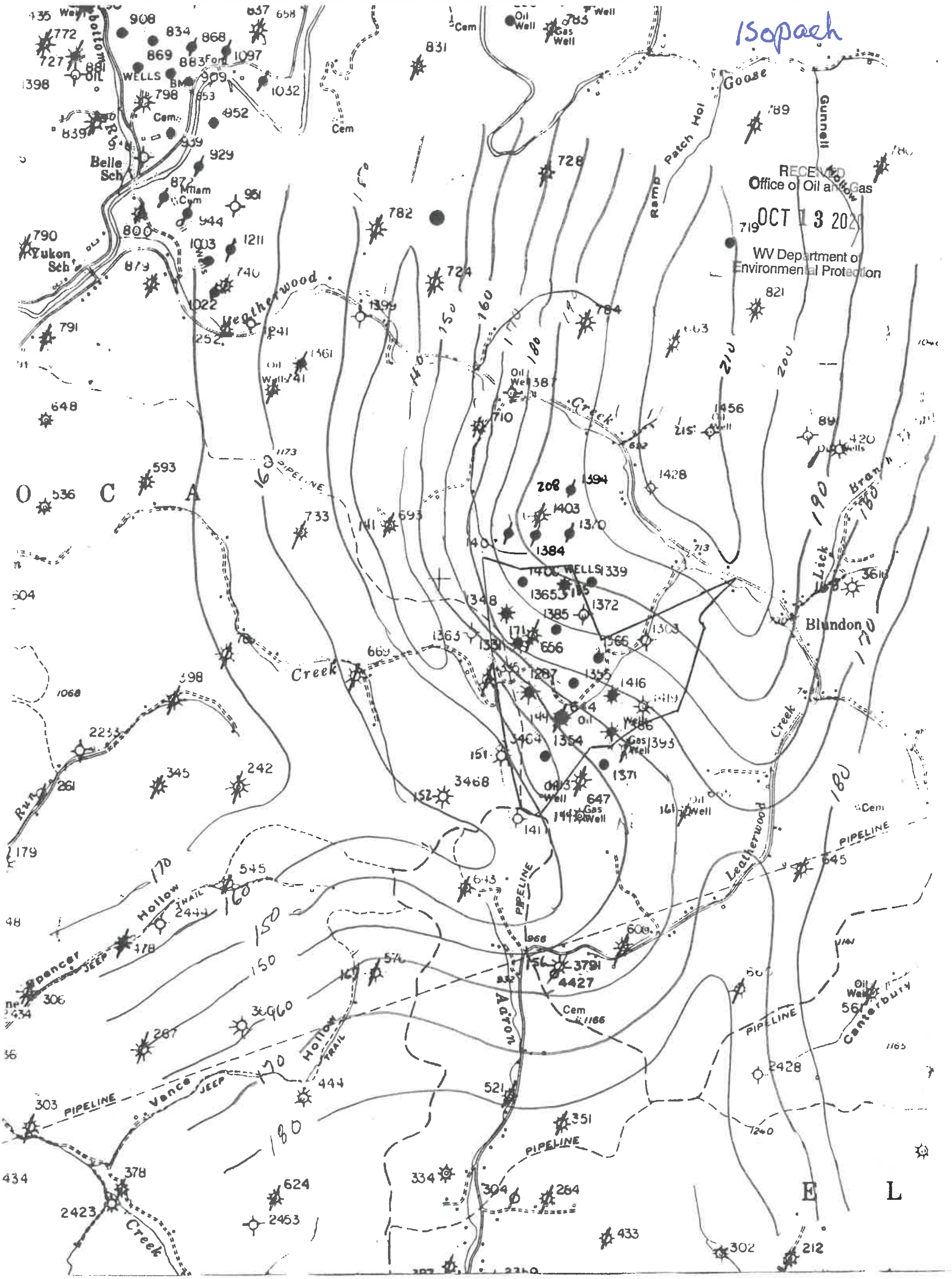


http://ims.wvgs.wvnet.edu/ATG5/MapFrame.htm

5/6/2013

STRUCTURE





Isopach
RECEIVED
Office of Oil and Gas
OCT 13 2020
WV Department of
Environmental Protection
Belle Sch
Yukon Sch
Leatherwood
Creek
Goose
Ramp
Patch Hol
Gunnell
Lick
Branch
Blundon
Hollow
Spencer
Run
Vance
Aaron
Canterbury
PIPELINE
JEEP TRAIL
Cem
OIL WELLS
Gas Well
O C A
E L

Michael W. Lewis
Independent Petroleum Consultant
12 Jonsen Drive
Charleston, WV 25312
304 382-5804 ***mikelewis25@aol.com***

Memorandum

To: Jamie Peterson

From: Michael Lewis

Subject: Parsons No. 1-A Disposal Well Fluid Migration Calculations

Date: October 1, 2013

This memo is being provided in response to your request to provide calculations for estimating the extent of fluid migration in the Big Lime formation from injection into the zone in the Parsons disposal well.

To make this estimation I used the volumetric method of determining reservoir fill up from injection operations. This method requires the number of barrels of fluid injected over time so I have therefore supplied the calculations and extent of fluid movement estimates for a few different total fluid volumes that may be expected over the wells life. As you are aware, this well had been previously operated for injection purposes several years ago and I do not have that volume information available. The calculations are based upon total volumes over the life of the well and therefore take into account any previous volumes.

Calculations are as follows:

$$R = \sqrt{\frac{\left(Q \times 5.625 \left(\frac{ft3}{bbl}\right)\right)}{(\pi \, x \, \theta \, x \, h \, x \, Sd}}$$

Where: R = Lateral Distance of Fluid Bank From Wellbore
Q = Cumulative Volume (bbls)
θ = Porosity Average (%)
h = Reservoir Height (ft)
Sd= Saturation Displacement (%)

Values used for calculations are: *Cumulative Volume = variable*
Porosity Average = 16%
Reservoir Height = 18 ft
Saturation Displacement = 25%

The calculation is provided below for a cumulative injection volume of 100,000 bbls only with other volumes and the respective R values listed below the calculation:

$$R = \sqrt{\frac{100{,}000\ bbls\ x\ 5.615\ ft3/bbl}{3.14\ x\ .16\ x\ 18\ x\ .25}}$$

R = 498 ft.

Q = 250,000 bbls *R = 788 ft.*

Q = 500,000 bbls *R = 1115 ft.*

Q = 1,000,000 bbls *R = 1576 ft.*

As you can see, the lateral distance of the fluid bank from the wellbore is fairly minimal for a large volume of water being injected in the well. While these calculations provide an estimate only, I believe this type of estimation is most likely the best that can be made with the information which is available.

DEP RECORDS SHOW TOTAL ACCUMULATED VOLUME INJECTED AS OF APRIL 2022 IS 285,511 BBLS. PLUME CALCULATED AT 842ft.

Plume Calcs 2D03900644 Base

Q =	285511	bbls
θ	0.16	Porosity
h =	18	Thickness
Sd =	0.25	Sat. Den.

April-22

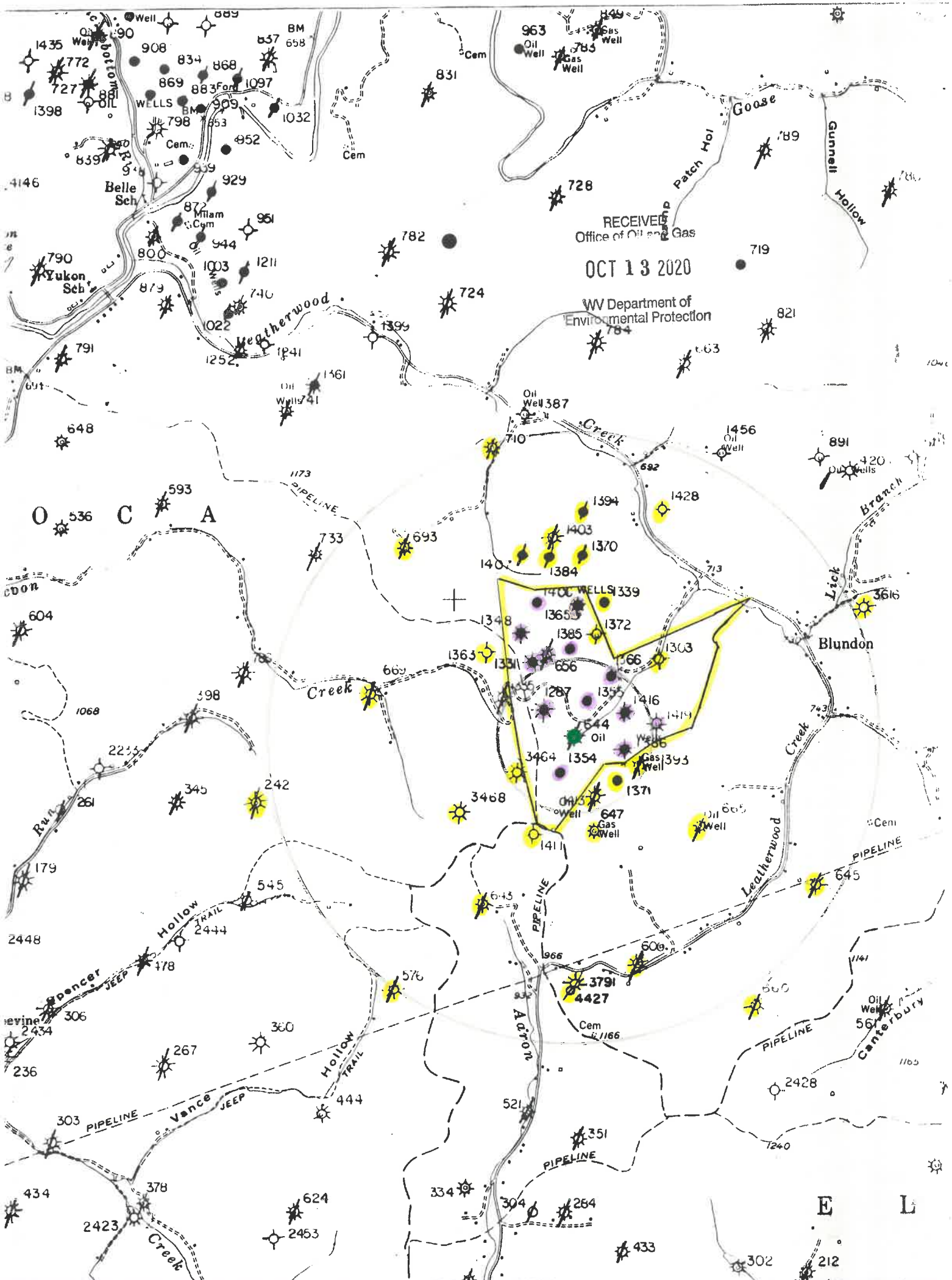
Cum bbl	cf/bbl	cum cu ft
285511	5.61	1601716.7

A	B	C	D
Pi	Porosity	Thickness	Sd
3.14	0.16	18	0.25

---> **A*B*C*D** 2.2608

E	F
cum cu ft	
1601716.7	2.2608

---> E / F 708473 ---> (square rt of (E/F) **Radius** 842


RECEIVED
Office of Oil and Gas
OCT 13 2020
WV Department of
Environmental Protection
Blundon
Belle Sch
Yukon Sch
Milam Cem
Leatherwood
Patch Hol
Goose
Gunnell Hollow
Lick Branch
Creek
Run
Hollow
Aaron
Canterbury
Spencer
Vance
PIPELINE
TRAIL
JEEP
WELLS
Oil Well
Gas Well
Cem
O C A
E L

BIROWELL

Density
Borehole Compensated

PERMIT NO
47-039-3467

COMPANY D C MALCOLM, INC

WELL M HARDINS #2

FIELD

COUNTY KANAWHA STATE WV

LOCATION: COON CREEK WATERSHED
POCA DISTRICT

SEC. TWP. RGE.

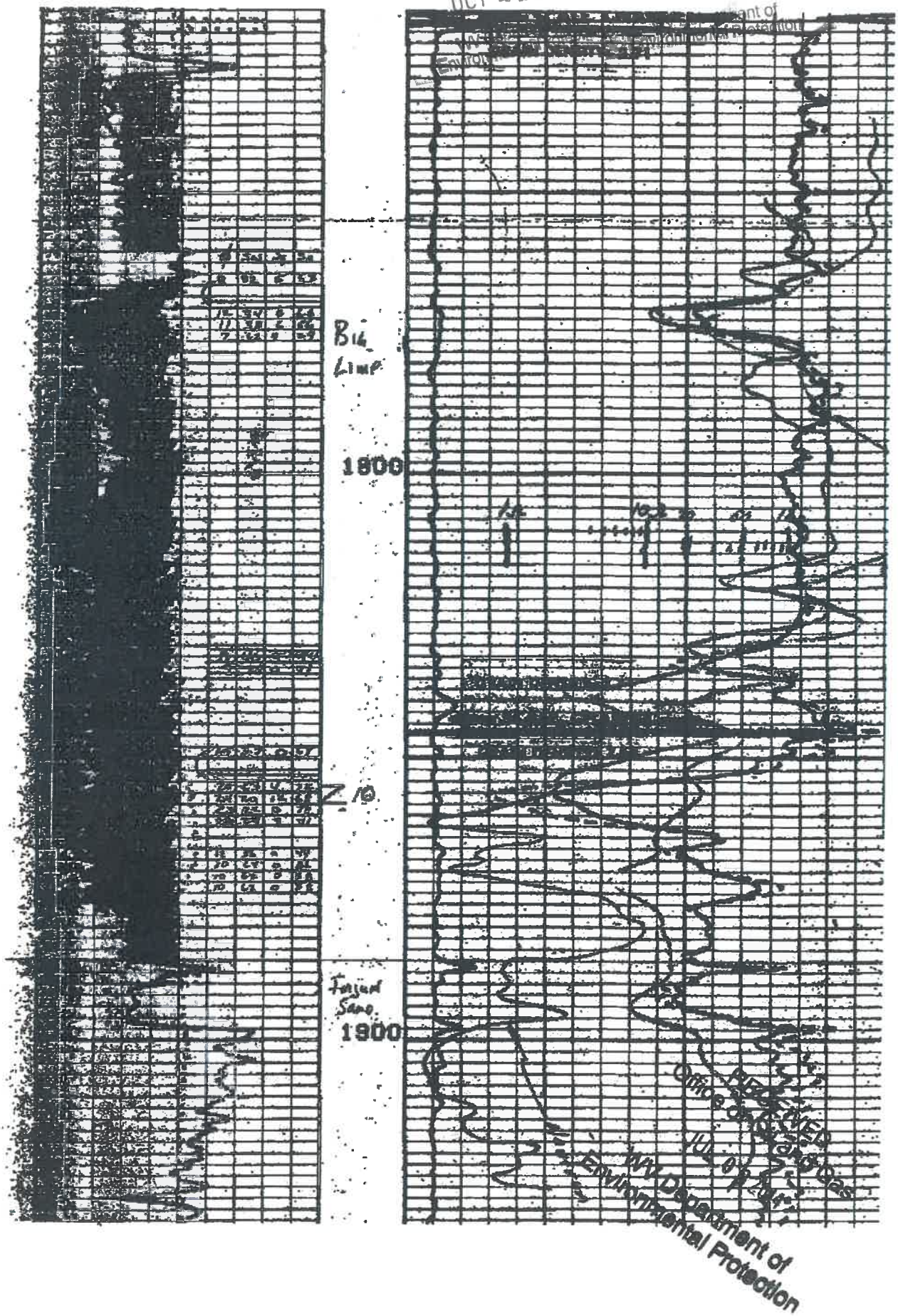
OTHER SERVICES:
NBC-I S

PERMANENT DATUM GROUND LEVEL ELEV.
LOG MEASURED FROM KB 10 FT. ABOVE PERM. DATUM
DRILLING MEASURED FROM KELLY BUSHING

ELEV. K.B.
D.F.
G.L.

DATE	8-10-79				
RUN NO.	ONE				
DEPTH—DRILLER	2434				
DEPTH—LOGGER	2398				
BTM. LOG INTER.	2396				
TOP LOG INTER.	SURFACE				
CASING—DRILLER	8 5/8 @ 235	@	@	@	@
CASING—LOGGER	—				
BIT SIZE	7 7/8				
TYPE FLUID IN HOLE	MUD				
FLUID LEVEL	SURFACE				
DENS. / VISC.	— / —				
PH / FLUID LOSS	— / — ml		ml	ml	ml
SOURCE OF SAMPLE					
Rm @ MEAS. TEMP.	@ °F	@ °F	@ °F	@ °F	
Rmf @ MEAS. TEMP.	@ °F	@ °F	@ °F	@ °F	
Rmc @ MEAS. TEMP.	@ °F	@ °F	@ °F	@ °F	
SOURCE Rmf / Rmc					
Rm @ B.H.T.	@ °F	@ °F	@ °F	@ °F	
TIME SINCE CIRC.	4 HRS				
MAX. REC. TEMP.	103 °F	°F	°F	°F	
EQUIP. LOCATION	3343 / CHARLESTON WV				
RECORDED BY	P SICA				
WITNESSED BY	MR MALCOLM	MR BENNETT			

FIELD PRINT



Section 9

Operating Requirements

A. OPERATING REQUIREMENTS

1. The UIC Permit and all attachments must be kept on location at all times.

2. Injection Fluid. The Permittee shall not inject any hazardous substances, as defined by 40 CFR 261, or any other fluid, other than the fluids produced solely in association with oil and gas production operations.

3. Any well that penetrates the injection zone with an inactive and/or abandoned status within the permitted Area of Review, that does not have cement casing through the injection zone, shall be monitored immediately by a method approved by the Office of Oil and Gas, as well as properly plug and abandon such wells, as necessary.

4. Injection between the outermost casing protecting underground sources of drinking water and the wellbore is prohibited, as is injection into any USDW.

5. Corrective Action. The applicant must satisfy the requirement of the Office of Oil and Gas regarding any corrective action needed on all known wells penetrating the injection zone within the area of review. This must be done in a manner which satisfies the requirements of 47 CSR 13-13.9.

6. Loading and unloading stations shall have spill prevention and control facilities and procedures as well as secondary containment. Spill containment and cleanup equipment shall be readily accessible.

7. The Permittee shall ensure that secondary containment for existing above ground storage tank(s) shall be adequately designed and constructed to be sufficiently impervious to prevent the released substance from penetrating the containment structure until the release can be detected and recovered, but in no case will that time be less than seventy-two (72) hours.

8. The above ground storage tank(s) associated with this underground injection facility shall have secondary containment sufficient capacity to contain 110% volume of the largest tank. Tank batteries or tanks connected in series by manifold, the combined volume of the tanks must be considered if the tanks are capable of simultaneous release. The combined capacity of the tanks connected by manifold shall be considered, unless the tanks are operated in a manner that prevents fluids flowing from one tank to another under any conditions.

9. Above ground tanks connected in series by manifold shall utilize a system where valves are closed and locked to isolate tanks when their combined volume exceeds the secondary containment capacity. At no point in time shall the combined volume be accessible through the manifold system exceed the capacity of the secondary containment without someone being on site to monitor.

10. Pumps and ancillary equipment (e.g. valves, flanges, filters, condensate lines and instrumentation) handling materials that have the potential to contaminate groundwater shall be selected and installed to prevent or contain any spills or leaks.

11. Sumps containing materials which have the potential to contaminate groundwater shall be designed, constructed, and operated utilizing leak detection or secondary containment, or other appropriate controls that are capable of preventing groundwater contamination.

12. No third-party haulers shall be permitted without approval by the Office of Oil and Gas. For approval, the Permittee shall designate by letter to the Office of Oil and Gas, any third-party hauler proposed to be used for the transportation of fluids to the facility. The third-party hauler may not commence transportation of fluids to the facility until approved by the Office of Oil and Gas.

13. Facility Security. The gate on the access road to the site shall be closed and locked at all times when there is not a company representative at the facility. All valves, water drains, containment areas, and storage areas shall be secured and locked utilizing locking devises and/or plugs. During the life of this permit all gates and access points shall be secured and locked while no representative is at the facility. All visitors must check in upon arriving at the facility. Haulers (if used) shall not be allowed to off load without the proper paperwork and documentation.

APPENDIX A

1) GEOLOGIC TARGET FORMATION Big Lime (Greenbrier Limestone)

Depth 1,560 Feet (top) 1,690 Feet (bottom)

2) Estimated Depth of Completed Well, (or actual depth of existing well): 1,690 Feet

3) Approximate water strata depths: Fresh 90, 100 Feet Salt 1,123, 1,180 Feet

4) Approximate coal seam depths: None

5) Is coal being mined in the area? Yes _____ No X

6) Virgin reservoir pressure in target formation 1,155 psig Source Well Record

7) Estimated reservoir fracture pressure _____ psig (BHFP)

8) MAXIMUM INJECTION OPERATIONS:

Injection rate (bbl/hour)	2
Injection volume (bbl/day)	48
Injection pressure (psig)	0 (Gravity Feed)
Bottom hole pressure (psig)	850

9) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES

Brine water/produced fluids from oil and gas wells.

No additives will be used.

Temperature of injected fluid: (°F) 70 Degrees Fahrenheit

10) FILTERS (IF ANY) 10 Micron

11) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

N/A

Sturm Environmental Services

VICTORIA L. HOOPS, PRESIDENT

COMPANY: KERMIT TYREE

SAMPLE ID: 6444 PARSONS 2D INJECTATE

SAMPLED BY: G. SMITH

DATE/TIME SAMPLED:* C

DATE/TIME RECEIVED: 09-29-22 2050

LABORATORY ID: KT 220929-2

PARAMETER	TEST RESULTS	UNITS	METHOD	METHOD DETECTION LIMIT	MINIMUM REPORTING LIMIT	DATE/TIME ANALYZED	ANALYST
pH O	5.7	units	SM22nd 4500 HB	.1	2.-10	10-03-22 1035	ZT
TDS	111300	mg/L	USGS I-1750-85	4	4	10-04-22 1241	MRM/KS
SO_4	U	mg/L	EPA 300.0 Rev 2.1-1993	1.0	10.0	10-06-22 0055	DC
Cl^-	72200.	mg/L	EPA 300.0 Rev 2.1-1993	1.0	1.0	10-06-22 1628	DC
Al	4.17	mg/L	EPA 200.7 Rev 4.4-1994	.04	.25	10-06-22 1004	DB
As	.504	mg/L	EPA 200.9 Rev 2.2 1994	.0025	.005	10-04-22 1349	RC
Ba	32.9	mg/L	EPA 200.7 Rev 4.4-1994	.003	.05	10-06-22 1004	DB
Br	U	mg/L	EPA 300.0 Rev 2.1-1993	.10	.50	10-04-22 1745	DC
Ca	8427.	mg/L	EPA 200.7 Rev 4.4-1994	.15	.50	10-06-22 1004	DB
Fe	321.	mg/L	EPA 200.7 Rev 4.4-1994	.05	.25	10-06-22 1004	DB
Mn	4.77	mg/L	EPA 200.7 Rev 4.4-1994	.002	.05	10-06-22 1004	DB
Na	33500.	mg/L	EPA 200.7 Rev 4.4-1994	.03	.50	10-06-22 1004	DB
Sr	338.	mg/L	EPA 200.7 Rev 4.4-1994	.002	.05	10-07-22 0829	DB
SPEC GRAV	1.08518	mg/L	Calculation			10-07-22 1800	SW

*Client Provided

**See Attached. The following results meet or exceed requirements and standards set forth by the certifying authority except where noted.

Data Qualifiers

B Analyte found in reagent blank. Indicates possible reagent or background contamination.
E Estimated Reported value exceeded calibration range.
J Reported value is an estimate because concentration is less than reporting limit.
PND Precision not determined.
R Sample results rejected because of gross deficiencies in QC or method performance. Re-sampling and or re-analysis is necessary.
RND Recovery not determined.
U Compound was analyzed for, but not detected.
O Out of holding. Time does not meet 40 CFR 136/141 compliance.
T This result is not supported by our certification ID.
A Does not meet 40 CFR 136/141 compliance.
C Does not meet 47 CSR 32 compliance.

Narrative:C: NO DATE/TIME SAMPLED ON COC.

Approved

INJ. FLUID

CHAIN OF CUSTODY RECORD

Sturm Environmental Services

STURM ENVIRONMENTAL
BRUSHY FORK ROAD
BRIDGEPORT, WV 26330
PHONE: 304-623-6549
FAX: 304-623-6552

STURM ENVIRONMENTAL SERVICES
610 D STREET
SO. CHARLESTON, WV 25303
PHONE: 304-744-9864
FAX: 304-744-7866

MAILING ADDRESSES ARE LISTED BELOW

REPORT TO: Client Name: Kermit Tyree
Address: 4662 Abrams Fk
City/State/Zip: Elkview WV 25071
Contact Person: ~~Gene Smith~~ Rod Dillon
Telephone Number: 304-546-5214 Fax No.
Email Address:
Sampler Name: (Print) Gene Smith
Sampler Signature: Gene Smith
Project Name: Parsons 2D Injectate
Special Reporting: ☐ Email Results ☐ Fax Results

BILL TO: Client Name: Same
Address:
City/State/Zip:
Contact Person:
Telephone Number: Fax No.
Email Address:
Purchase Order #:
TURN AROUND TIME: ___ Standard
___ RUSH (pre-scheduled; surcharges may apply) *Please Check One* 1 DAY 2 DAY 3 DAY
___ Date Needed

Sample ID / Description	COMPOSITE SAMPLE: START DATE	START TIME	END DATE	END TIME	GRAB SAMPLE: DATE	TIME	PRESERVATIVE: Ice	OTHER	$Na_2S_2O_3$ TC/FC	HCl	NaOH	H_2SO_4 Plastic	H_2SO_4 Glass	None	HNO_3	MATRIX: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	METHOD/ANALYSES	# of Bottles	Field pH	Flow (gpm, cfs, mgd) circle one	Field Conductivity	Field DO	Field Chlorine (mg/L or ug/L) circle one	Field Temp (F° or C°) circle one
644																						See Attached List	8/7 vials						

Comments

Records retained for 5 years

Relinquished by	Date	Time	Received by	Date	Time
Gene Smith	9/29/22	1:00			
Josh	9-29-22	2050	LLC	9-29-22	2050

Laboratory Comments:
Temperature Upon Receipt. LG
Bottles Preserved? (Y) N
Temp upon Receipt:

APPENDIX F

Area Permit Wells

API #	Well Type (Injection, Production, Observation, Monitoring)	Well Status (Active, Abandoned, Shut-in, Plugged)	Northing (UTM NAD 83 Meters)	Easting (UTM NAD 83 Meters)
	Not Applicable			

Make as many copies as necessary and include page numbers as appropriate.

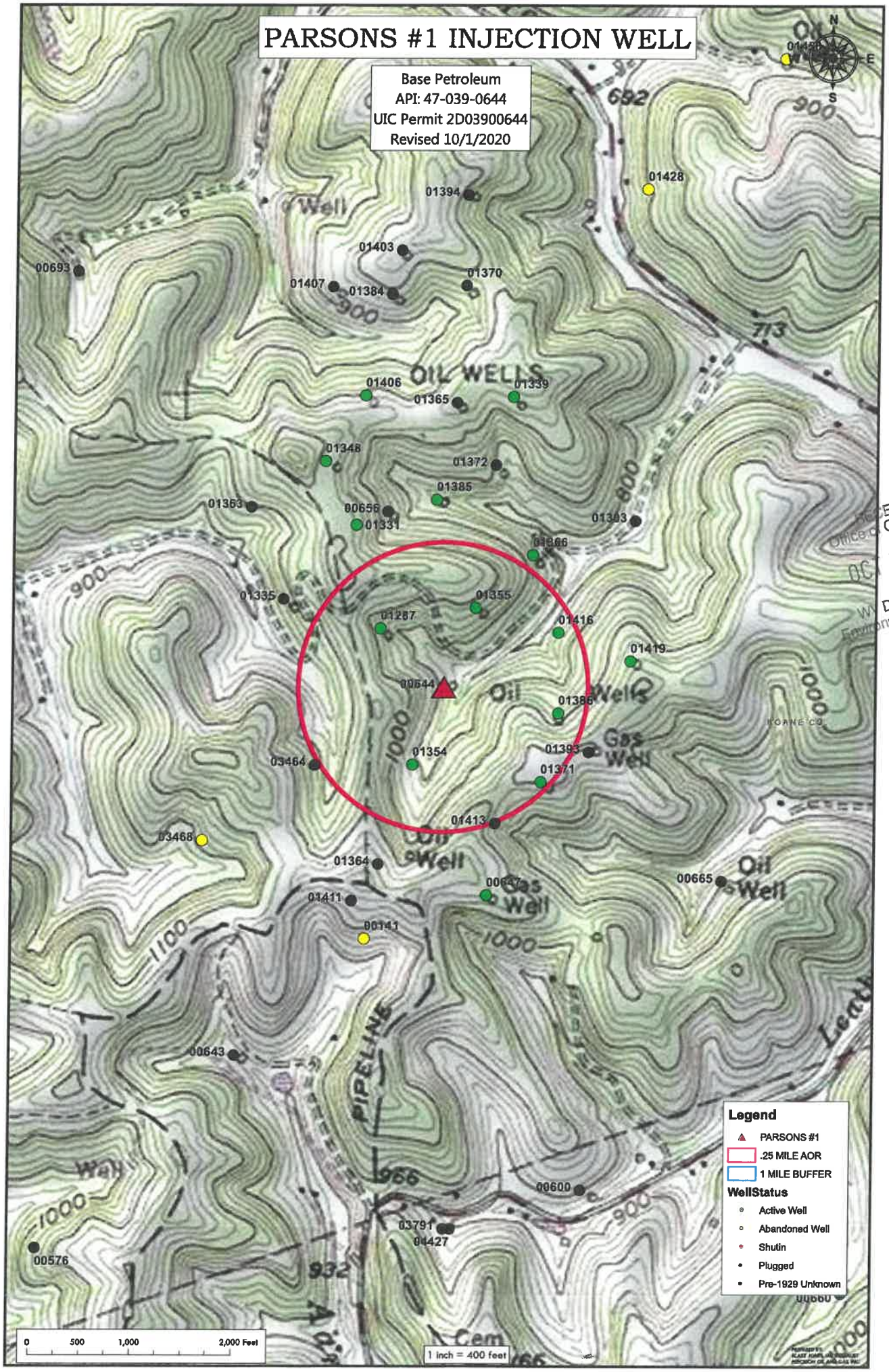
(4/25)

APPENDIX G

Wells Serviced by Injection Wells

API #	Operator	Producing Formation
47-039-0644	Base Petroleum Inc.	Big Lime/ Disposal well
47-039-1287	Base Petroleum Inc.	Big Lime
47-039-1354	Base Petroleum Inc.	Big Lime
47-039-1355	Base Petroleum Inc.	Big Lime
47-039-0656	Base Petroleum Inc.	Big Lime
47-039-1331	Base Petroleum Inc.	Big Lime
47-039-1348	Base Petroleum Inc.	Big Lime
47-039-1365	Base Petroleum inc.	Big Lime
47-039-1366	Base Petroleum Inc.	Big Lime
47-039-1385	Base Petroleum Inc.	Big Lime
47-039-1386	Base Petroleum Inc.	Big Lime
47-039-1406	Base Petroleum Inc.	Big Lime
47-039-1416	Base Petroleum Inc.	Big Lime
47-039-1419	Base Petroleum Inc.	Big Lime
47-039-0719	Base Petroleum Inc.	Big Lime

Make as many copies as necessary and include page numbers as appropriate.



RECEIVED
Office of Oil and Gas
OCT 13 2021
WV Department of Environmental Protection

Section 10

Monitoring

A. MONITORING REQUIREMENTS

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the fluid to be analyzed and the procedure for analysis of the sample shall be in accordance with test procedures approved under 40 CFR 136.3, unless otherwise approved by the Chief. The Permittee shall identify the types of tests and methods used to generate the monitoring data.

2. All environmental measurements required by the permit, including but not limited to, measurements of pressure, temperature, mechanical, and chemical analyses shall be done in accordance with state guidance on quality assurance. All analysis must be performed by a West Virginia certified laboratory.

3. Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analysis(es) were performed;
d. Individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

4. The Permittee shall daily monitor all the casing annuli with pressure sensitive devices or with such a method as approved or required by the Office of Oil and Gas to allow early detection of any leaks from the injection zone or casing. The Permittee shall also monitor injection pressure, volume, and rate daily. This information shall be reported monthly using the Office of Oil and Gas electronic WR-40 Form. Submittal shall be through the current WVDEP Electronic Submittal System (ESS).

5. The Permittee shall utilize a pressure recording device capable of both positive and negative pressure reading/recording. The pressure recording device must have an accuracy of +/- 1% of span to continuously record the tubing / casing (2 3/8" x 8 5/8") annulus pressure. Prior to injection, the operator shall note the daily annulus pressure (daily baseline). Any deviation plus or minus 25 psi during injection of the daily baseline annulus pressure shall be considered a MIT failure. Injection operations must cease and the Office of Oil and Gas must be notified in writing if a MIT failure occurs.

6. The Permittee shall determine the tubing / casing (2 3/8" x 8 5/8") annulus fluid level (feet below surface elevation) and retain the measurements at the facility office. Should the fluid level rises to within 100' of the lowermost USDW then immediately cease operations and report such findings to the Office of Oil and Gas.

7. The Permittee shall sample, analyze, and record the nature of all the injected fluid for the parameters listed in TABLE 1 below at the initiation of the injection operation and upon request by the Chief or whenever the operator observes or anticipates a change in the injection fluid.

TABLE 1

-pH	-Manganese
-Specific Gravity	-Total Dissolved Solids
-Barium	-Hydrogen Sulfide
-Specific Conductance	-Sodium
-Iron	-Alkalinity
-Magnesium	-Hardness
-Chloride	-Total Organic Carbon (TOC)
-Dissolved Oxygen	

8. Any analysis result of specific gravity greater than 1.2 or any analysis of TOC greater than 250.0 mg/L shall be reported to the Chief within twenty-four (24) hours of the results.

9. The Permittee shall maintain a record (manifest) of every load of fluid received. The record shall include the hauler's name and signature, the operator's name and signature, API number for the well the fluid was collected or the location from where the load was obtained, the volume of the load and whether the load of fluid delivered was a split load. If the load was a split load, each operator's name and location shall be listed and, if possible, the volumes of fluid received from each operator documented. This information shall be maintained on the Class II disposal manifest attached to this permit and maintained at the facility.

10. A wellhead pressure gauge shall be installed and maintained on the injection tubing to facilitate inspection and ensure compliance of maximum injection pressures as approved on Oil and Gas Form WR-37. A daily reading of the injection pressure shall be taken and reported on Form WR-40.

11. All pipeline(s) from the injection pump to the injection well shall be tested for integrity at least once every five (5) years with the results reported and on WR-37 Form along with the pressure test recording graph/chart and then submitted to the Office of Oil and Gas within thirty (30) days. The pipeline integrity test shall pressurize the injection pipeline(s) to 300 psi for a minimum of thirty (30) minutes, allowing for no more than five (5) percent loss after completion. The Permittee shall notify the Chief of his or her intent to conduct an integrity test of the pipeline(s) no less than twenty-four (24) hours prior to such test. Upon failure of a mechanical integrity test or expiration of the five (5) year mechanical integrity test regulatory period, the Permittee shall cease operation/injection and shut-in the well immediately until successfully repaired, replaced and then tested. Repairs shall be completed by the Permittee and approved by the Office of Oil and Gas. All repairs shall be completed within ninety (90) days of the failure date. If repaired, the well must be re-tested and an updated WR-37 Form must be submitted to the Office of Oil and Gas for approval. Any change made to the pipeline fittings or piping will require integrity testing.

12. The Permittee shall conduct a mechanical integrity test of the injection well at a minimum frequency of once every five (5) years per 35 CSR 4-7.7.b. The Permittee shall notify the Chief of his or her intent to conduct a mechanical integrity test no less than twenty-four (24) hours prior to such demonstration. The Permittee must submit a WR-37 Form with each mechanical integrity test along with the pressure test recording graph/chart to the Office of Oil and Gas within thirty (30) days. Upon failure of a mechanical integrity test or expiration of the five (5) year mechanical integrity test regulatory period, the Permittee shall cease operation/injection and shut-in the well immediately until successfully repaired, tested or permanently plugged and abandoned per regulation. Corrective action for repairs shall be completed for approval by the Office of Oil and Gas and be conducted within ninety (90) days of the failure date. If repaired, the well must be re-tested and an updated WR-37 Form must be submitted to the Office of Oil and Gas for approval.

13. In addition to the above requirement, a mechanical integrity test demonstration shall be conducted whenever protective casing or tubing is removed from the well, the packer is replaced or reseated, if well failure is likely, or as requested by the Chief. The Permittee may continue operation only if he or she has successfully demonstrated to the Chief the mechanical integrity of the permitted well. The Permittee shall cease injection operations if a loss of mechanical integrity becomes evident or if mechanical integrity cannot be demonstrated.

Section 11

Groundwater Protection Plan

(4/25)

APPENDIX H

GROUNDWATER PROTECTION PLAN

Facility Name: BASE PETROLEUM PARSONS #1A

County: KANAWHA

Facility Location:

Postal Service Address:			
Latitude :	37.535493	Longitude:	-81.534326

Contact Information:

Person:	JOHN WILCOX
Phone Number:	304-756-2827
E-mail Address:	jhnwilcox@aol.com

Date: 10/1/2020

1. A list of all operations that may contaminate the groundwater.

There Is one transfer point where tanker trucks operated by Kermlt Tyree Contracting are able to dump produced fluids from various wells as indicated in Appendix G Into a single 210 bbl. storage tank.

2. A description of procedures and facilities used to protect groundwater quality from the list of potential contaminant sources above.

Tanker trucks are backed onto the site to the transfer point which is located directly above the tank battery and the secondary containment. The transfer point has a plastic tub lined with absorbent pads to collect any drippings from the transfer. Any line breaks in the transfer would be contained in the secondary containment.

3. List procedures to be used when designing and adding new equipment or operations.

No new equipment or operations are anticipated for this facility at this time.

4. Summarize all activities at your facility that are already regulated for groundwater protection.

UIC regulations are applicable to the disposal well and oil and gas laws and regulations are applicable to all associated operations.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

Little information exists for the general area due to the lack of water supply wefts. Historical information and limited water samples from 1he area Indicate fair water quality due to typical higher iron concentrations that exist throughout many areas of 1he state.

6. Provide a statement that no waste material will be used for deicing or fill material on the property unless allowed by another rule.

No waste material will be used for deicing or fill material on the property

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

Kermit Tyree Contracting currently operates 1hls well for Base Petroleum Inc. and will provide employees instruction and training In this recognition and prevention of groundwater contamination and the potential sources of contamination on quarter1y basis. Employees will be trained on proper procedures for filling tanker trucks at the producing well locations In order to eliminate contamination at other sites as well as transportation of those fluids. Once the tanker truck enters the disposal facility, employees will be given instruction as to the proper procedures for connecting to the transfer station and pumping of the fluids Into the storage tanks. Employees will be Instructed on measures to be taken in the event of a spill. All spills will be reported to the WVDEP or appropriate authority immediately after clean-up.

8. Include provisions for inspections of all GPP elements and equipment. Inspections must be made quarterly at a minimum.

While the injection well is in operation, inspections are made on a daily basis. These inspections include, but are not limited to visual inspection of all equipment, pipelines, storage tanks, and overall operations. The injection well is subject to MIT every five years.

Signature: _____

Date: _____

Section 12

Plugging and Abandonment

47-039-00644 Parsons # A-1

Plugging Procedure

Rig up the rig

Pull 1,590' of 2 3/8" tubing, remove the packer

Run 2 3/8" tubing in the hole to @1,675'

Gel the hole

Cement from 1,675' to 1,550'

Pull the 2 3/8" tubing from the hole

Free point and cut the 8 5/8" casing @900'

Pull the 8 5/8" casing from the hole

Run 2 3/8" tubing in the hole to 900'

Cement from 900' to 800'

Cement from 500' to 400'

Cement from 100' to surface

Erect a monument with the API number attached

Section 13

Additional Bonding

The facility does not require additional bonding.

Section 14

Financial Responsibility

6/2002

APPENDIX I

Requirement for Financial Responsibility to Plug/Abandon an Injection Well

In accordance with Legislative Rule 47 CSR 13-13.7.g, all UIC permits shall require the permittee to maintain financial responsibility and resources to close, plug, and abandon underground injection wells in a manner prescribed by the Chief. The permittee must show evidence of financial responsibility to the Chief by submission of a surety bond, or other adequate assurance, such as a financial statement or other material acceptable to the Chief. This certification must be signed by one of the following:

1. a principle corporate officer of at least the level of vice-president for a corporation,
2. a general partner for a partnership,
3. the proprietor or owner of a sole proprietorship,
4. a principal executive or ranking elected official for a public agency,
5. a duly authorized representative in accordance with Legislative Rule 47 CSR 13-13.11.b (A person may be duly authorized by one of the primary entities (1-4) listed above by submitting a written authorization to the Chief of the WVDEP Office of Oil and Gas designating an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

Base Petroleum

Company Name

2D03900644

UIC Permit Number

I certify in accordance with Legislative Rule 47 CSR 13-13.7.g, the company/permit holder cited above will maintain financial responsibility and resources to close, plug, and abandon underground injection wells(s) in a manner prescribed by the Chief of the Office of Oil and Gas and that documents to support this requirement are on record with the same.

John Wilcox

Print Name

Agent

Print Title

John Wilcox

Signature

6/10/22

Date

Section 15

Site Security Plan

APPENDIX J

Site Security for Commercial Facilities

Provide a detailed description of the method(s) utilized at the facility to restrict or prohibit illegal dumping of unauthorized waste or vandalism at the facility.

1. Complete enclosure of all wells, holding tank/pits and manifold assemblies within a chain link or other suitable fencing; and

2. Require that all gates and other entry points be locked when the facility is unattended; or

3. Providing tamper-proof seals for the master valve on each well (a "lock-out" or chain & padlock system would be more secure; however, these devices could create a potential safety hazard if the well needed to be quickly shut in due to an emergency); and

4. Installing locking caps on all valves and connections on holding tanks, unloading racks, and headers.

The Facility is Non-Commercial.

Section 16

Additional Information

APPENDIX K

Identify permit or construction approvals received or applied for under the following programs:

Permit/approvals	ID Number
Hazardous Waste Management Program under RCRA	
NPDES Program	
Prevention of Significant Deterioration (PSD)	
Nonattainment Program	
Dredge or Fill	
NPDES/NPDES – Stormwater	
WVDEP – Office of Waste Management (OWM) – Solid Waste Facility	
WVDEP – OWM – RCRA (Hazardous Waste TSD or Transporter)	
WVDEP – OWM – UST	
CERCLA – Superfund	
WV Voluntary Remediation – Brownfields	
FIFRA – Federal Insecticide, Fungicide and Rodenticide Act	
Well Head Protection Program (WHPP)	
Underground Injection Control (UIC)	UIC2D0390644
Toxic Substances Control Act (TSCA)	
Best Management Plans	
Management of Used Oil	
Other Relevant Permits (Specify):	